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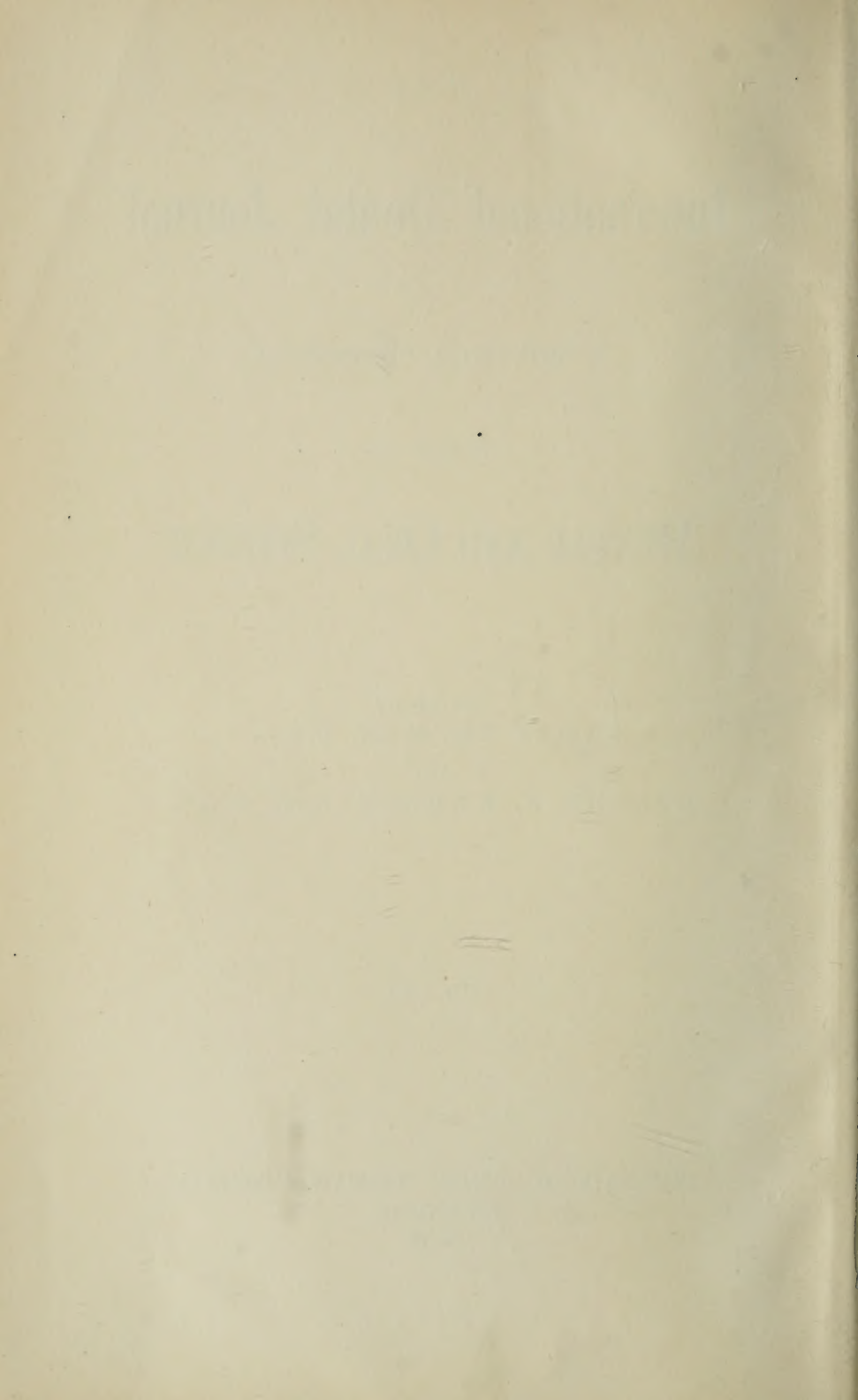
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Original Communications.¹

"TOTHE-LORE." ²

BY GEORGE L. PARMELE, M.D., D.M.D. (HARV.), HARTFORD, CONN.

"Aloft in rows large poppy-heads were hung,—
In this place, drugs, in musty heaps decay'd,
In that, dry'd bladders and drawn teeth were laid."

At first thought one would hardly imagine that the field to which I invite you this evening could afford sufficient material to allow of the devotion of much time to its consideration.

The call for the meeting states that I will read a paper on "Tothe-Lore," but a title so dignified is hardly appropriate for what I intend to offer; let it pass rather as a compilation of items gathered and noted down from time to time through many years,—items culled from every conceivable source, ranging from ponderous tomes to the old-time family almanac.

From this mass of material I have selected some examples with which to bore you.

Philosophy is said to console a man under disappointment, although Shakespeare asserts that it is no remedy for toothache. Assume, then, the air of a Stoic and lend me your ears. The days of miracles and chivalry, we are told, have passed,—witches, fairies, ghosts, goblins, and devils are laid full many a fathom deep in the

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read before the New York Institute of Stomatology, October 4, 1898.

ocean of oblivion, but charms and superstitions still abide with us, and one comes in contact with them almost daily.

How often do we meet those who will not undertake a new work or a journey on Friday, who exclaim when salt is spilled, or throw up their hands in "holy horror" when a mirror is broken!

These remnants of superstition originated in antiquity, and have been fostered by an age of credulity. Myths and superstitions, the wearing of charms and amulets, are common to many lands. Every country has its magic for the relief of pain and cure of disease; belief in it is not confined to the ignorant and uncultured, and no matter how great the distance between the countries a similarity in their myths and traditions will be observed.

Frequently actual prayers, exhortations, and orisons, not always reverential, often a mere form without meaning, are employed.

The constituent elements of folk-lore, items which we gather from day to day, are survivals of a condition of human thought lost in the obscurity of a dim past. Fontenelle, a writer of the last century, shrewdly remarked that "all nations made the astonishing part of their myths while they were savage and retained them from custom and religious conservatism."

"Folk-lore" is a term first suggested by Mr. Thoms, in 1846, to designate "that department of the study of antiquities and archaeology which embraces everything relating to ancient observances and customs, to the notions, beliefs, traditions, superstitions, and prejudices of the common people." My title "*Tothe-Lore*," or "*folk-lore of the mouth*," is an adaptation of this term to the special line along which I am working.

"Evolution in folk-lore" is a fascinating study, one which I hope to follow, but in which I have as yet hardly passed the stage of a collector.

Remembering Mrs. Glass's advice in cooking, "first catch your rabbit," let us, before dealing with the teeth themselves, observe a few of the caprices, curiosities, and maladies attending their passage through the gum, as well as some of the methods suggested to alleviate all difficulties thereupon attendant.

It is said that the baby who cuts its teeth hard will be successful in every way; on the other hand, the proverb "Soon toothed, soon turfed" signifies that a child which cuts its teeth early will be short lived. This is an English proverb, and the Scotch have as an equivalent "Soon tod, soon God." Some primitive tribes are in fear and dread of children whose upper teeth erupt before the lower and hasten to kill them, as do the Basutos, Wakikuyu, Wa-

nika, Wasawahili, and Wazegua. Among the Wazaramo, another African people, such children are either put to death, given away, or sold to a slave-dealer, for the belief is that, through them, sickness, misfortune, or death will enter the house. The Arabs of Zanzibar, after reading from the Koran, administer to such a child an oath that it will do no harm, making it nod assent with its head.

In the *Popular Science Monthly* I read that "the birth of a child among the Bondei people of Africa is attended, according to the account of the Rev. G. Dale, missionary, by many great perils, for if a single condition regarded as unfavorable occurs, the infant is strangled at once. Its life is in danger again at the time of teething, for it may be so incautious as to let its upper teeth protrude first, and if this is the case it is held unlucky, and will almost certainly be killed. Even if it is allowed to live it will be in perpetual danger, and any disaster that happens to its parents will be attributed to it. If, however, the under teeth protrude first, the child's moral character is established. The boy cannot, however, enter the house in which the unmarried men sleep till he has been publicly welcomed. For this ceremony, all the boys and girls assemble and the father brings the child out to show them that the lower teeth have protruded first. Then every house contributes Indian corn, and the children pound and eat it, after which the boy is regarded as one of them."

In some parts of England it is unlucky for a child to see itself in the mirror before it cuts its teeth, as it will be vain and proud. If a child would be lucky, it must cut its teeth on the mother's marriage ring. Gold, at any rate, should be used to bite upon.

A mole's foot tied by a string and hung around the neck while teething is believed (in and around Washington, D. C.) to aid the process. Perhaps this idea comes from the old doctrine of signatures, as, like the embryo tooth, the mole's foot burrows around in the dark. In some drug-shops, and in the markets in Georgia, the forefeet of moles are found for sale as aids in the eruption of the teeth of colored children.

It is said by old women that teething is made much easier by placing around the child's neck a string of "Job's tears," which consist of the dried berries of *croix lacryma*,¹ which are supposed to have a great soothing power.

¹ *Croix lacryma* is a grass native to the East Indies and Japan. The large, round, shining fruit has, when young, some resemblance to heavy drops of tears, hence the fanciful specific name. The medicinal effects are said to be tonic and diuretic.

"The well-known toy," says Brand, "and a piece of coral at the end, which is generally suspended from the necks of infants to assist them in cutting their teeth, is supposed to have originated in an ancient superstition, which regarded coral as an amulet against fascination. It was thought, too, to preserve and fasten the teeth in man." Plat, in his "*Jewel Home of Nature and Art*," says, "Coral is good to be hanged about children's necks, as well as to rub their gums, as to preserve them from the falling sickness."

The following I copied from a quaint old medical work, entitled, "*An Essay of the Pathology of the Brain and Nervous Stock, in which Convulsive Diseases are Treated of*," by Thomas Willis, of Christ Church, Oxford. Translated out of the Latin, London, 1681.

For the "convulsions of teeth-breeding . . . bleeding and the seton are recommended, then the following powder should be given in a spoonful of Jalap, for three days, morning and evening. Take of Human Skull prepared, of the root of male Pæonie, each, 3i; of Powder of Pearls, 3ss; White Sugar, 5i. Mingle them and make a very fine powder." From an unrecorded source I ascertained that for a child to cut its first tooth in the upper jaw is regarded in the South as a sign that the child will die in infancy. This idea was probably an African importation.

In North Carolina, when a nurse is so inconsiderate as to hold a baby out of an open window, or to allow it to see its own image in a mirror, the negroes believe that difficult teething is produced, the charm to cure which is a necklace of alligator's teeth, or to rub the gums with the ear of a rabbit.

That the time of the appearance of the teeth was often irregular was known to Shakespeare, for in *Richard III.*, act ii., sc. iv. he makes York say, "Marry, they say, my uncle grew so fast that he could gnaw a crust at two hours old; 'twas full two years ere I could get a tooth. Grandam, this would have been a biting jest."

In a "*Commonplace Book*," written by one Thomas Rawlins, of Pophills, between the years of 1724 and 1734, occur the following entries. (For these and many such I am indebted to *Notes and Queries*.) "There lives in Mill street, in Belfast, in Ireland, 1731, one Jane Hooks, of one hundred and twelve years of age, who has her memory and appetite as well as when she was but twenty years old, and she has got a new sett of teeth wch has drove out all ye old stumps."

"Robt. Lyon, of ye city of Glasgow, aged one hundred and

nine years, who was in service of Charles I. and who has got a new sett of teeth recovered his sight in a wonderful manner."

"Mrs. Page at ye Royal Oak, in Barnaly Street, Southwark, aged ninety years and upwards, has lately cut six great teeth in ye upper jaw, in June, 1732. . . . Had not a tooth in her head these twenty years past."

"Margaret White, of Kirkaldy in Scotland, aged eighty seven, who has been toothless for many years, has just got eight new and fresh teeth, April, 1732."

This from proceedings of the Suffolk Institute of Archæology: "Dying in 1669 she [the widow of John Croftes] bequeathed it [the Hall] to the Hon. Edward Progers of London. 'The gay Progers' who, according to Le Neve, died on the thirty first of December or the first of January, 1713, aged *ninety six* of the anguish of cutting teeth; he having cut four new teeth and had several ready to cut wh. so inflamed the gums that he died thereof."

H. M., in *Notes and Queries*, relates the case of a patient, aged seventy-five, who was laboring under a singular form of mental derangement. Among other points he notes (June, 1843): "A remarkable circumstance in this case is that she has cut an incisive tooth in the lower jaw, and is now cutting another, which fact confirms her in the strange belief that she is leading a *post mortem* existence, and has commenced at infancy again; for upon one of her daughters asking me if I thought it probable she would die, she exclaimed angrily, 'How can I die twice? I am only a child; see, I have not cut all my teeth yet.'"

Another correspondent in the same journal writes: "So far from being an extraordinary case, it really is a most common event, and I will venture to assert that there are very few persons who arrive at my age who have not had three sets of teeth. I can speak from experience. First I had my infantine set; next I had the set which, after serving me usefully for many years, gradually decayed and left me, and now I have a third set from which, I can truly say, *I suffered much cost* in the cutting by an eminent dentist in the West end—Septuagenarius et plus."

Bacon, in his "Natural History," speaking of the Countess of Desmond, who lived in the "Reigne of King Edward IV.," of whom it is asserted that she lived one hundred and forty years, says, "She did *dentire* [produce teeth] twice or thrice, casting her old teeth and others coming in their place."

To relieve the monotony, the following may be in order:

"A group of matrons, seated on the piazza of a popular summer

resort, were discussing the pearly teeth of a well-known actress, and branched off to criticising the molars and bicuspidis of their friends. 'Will you believe it,' remarked one well-preserved personage with a hyphenated name, displaying an admirable development of some width and whiteness, 'that my wisdom-teeth have not yet grown?' A second of dead silence ensued. It was broken by a male voice from the outer edge of the circle,—'Some century-plants never bloom.' The identity of the commentator remains undisclosed."

Turning now to the other extreme, we read that "Marcus Curius, nicknamed *Dentatus*," had all his teeth at birth; Richard III. did the same; and Jacobi reported the case of a Spanish dwarf who was born with all his teeth; and many more such cases could be given. "In the register of burials at Gayton-le-Marsh, Lincolnshire, duly certified to by the curate, is the following: 'Elizabeth Cook, a poor woman aged eighty six, who never had a tooth, was buried January 11, 1798.'"

Since writing this paper Mr. Bates, librarian of the Connecticut Historical Society, handed me the following from the "Simsbury Records:" "Sarah Slater first Daughter of Elias and Sara Slater was born february the Sixth day 1716/17 which was wensday—11 a'clock at night and baptised the 10th day—the 16 day thare appeared an uper fore toot the 19th day at one of the klok after noon it came quit out."

Let us close the section relating to dentition by guessing the following charade, from a little book entitled "A Century of Charades:"

"My first pours out at early teas;
My second's anything you please;
My whole's the cause of much disease."¹

Having safely conducted these useful organs on their journey from the "primitive groove" to the light of day, let us see how they have been christened and what names have been given them.

Leaving to the philologist the task of dealing with their various names and their derivations among the many races of the earth from early time, we will direct our attention to some of the more strictly folk-names.

¹ Answer, teething (tea thing).

Thus we have "Jenny wi' the Airn teeth," a Scotch painted devil, bogie, or imaginary being with iron teeth, employed to frighten little children into obeying.

"'Tis the eye of childhood
That fears a painted devil."

—SHAKESPEARE.

Frederick II., Elector of Brandenburg (1657–1713), was nicknamed Irontooth (*Dent de Fer*). A patient furnished me with the quotation, "Put your green teeth into that," referring, no doubt, to that unsightly, chlorophyllaceous stain often seen on the face of incisors. Another patient informs me that in North Carolina protruding incisors are called "butter-teeth." "Buck-teeth" has also been used in speaking of this same deformity. Dents barrés, or barred teeth, are the molar teeth when the roots are spread or tortuous, so that they cannot be extracted without being broken, or without a portion of alveolus being removed. Some old-time names for teeth are fang-tooth, the eye-tooth, wang-tooth, a molar, lag-teeth, wall-teeth, azzle-teeth. Axle-teeth and cheek-teeth are also synonymes for molar-teeth. Then we have wit-tooth, wisdom-tooth, or dens sapientiæ. The canine has been called eye-tooth, dog-tooth, and pug-tooth, a Devonshire word. The molar has been mentioned as pugging tooth, comparing it to a machine called a "pugging mill," by which clay is worked to blend its materials and render it plastic for bricks or pottery. Pug in Sussex meant a kind of loam.

In "Winter's Tale," iv. 2, Autolycus, referring to his molars, sings,—

"The white sheet bleaching on the hedge,
With, hey! the sweet birds, O how they sing!
Doth set my pugging tooth on edge;
For a quart of ale is a dish for a king."

Nares, in his collections, says, "There seems to be sufficient reason that it means thieving in the song of Autolycus, as pugging occurs for a thief in 'Roaring Girl.'"

Then we find "toodle," a tooth; "bridle-teeth," bicuspid, and "snaggle-teeth," irregular teeth. To have a "love-tooth" signifies having an inclination to love; and in Lyly's "Uphues and his England" we find, "Beleeve me Philantus, I am now old, yet have I in my head a love-tooth." Gat-tooth, goat-tooth (from Saxon

gaet), goat-toothed, is having a licoriced tooth. Chaucer makes the wife of Bath say, "Gat-toothed I was, and that became me wele." Having a goat- or licoriced tooth signified one who was wanton or lustful. In 1742 gag-tooth signified a projecting tooth. "The poets were ill advised that fained him to be a lean, gag-toothed beldame."—NASH. Gang-teeth in animals were those which protruded from the mouth. In some instances in early England "tooth" expressed keep or maintenance. Toothy was (1) peevish or crabbed, (2) having many or large teeth; and tooth-hod signified fine pasturing.

Let us glance an instant at some ideas of the people as to irregularities of the teeth.

"Teeth wide apart is a sign of good luck" is an English saying, and the French have an equivalent. The Welsh assert that a division between the two front teeth means wealth; if you can pass a sixpenny-piece through it, wealth and wisdom are promised.

In some sections of Scotland they say, "If the front teeth are wide apart it shows there exists a fondness for the opposite sex," or, as an old woman of Aberdour expressed it, "There is an indication of lightsome character." In other sections of Scotland this space between the incisors presages that the person will be short lived.

Having, in compliance with the directions of Mrs. Glass, of cook-memory, caught our teeth, touched upon their nomenclature, and dipped into their irregularities, what means has folk-lore furnished us to keep them from being

"By the sharp tooth of
Cankering eld defaced?"

—*The Schoolmistress*, SHENSTONE.

With charms which rival and outnumber the dragon's teeth sown by Cadmus. A few of these charms follow:

A Hartford lady, eighty-four years of age, gave me this charm for permanently preventing toothache: "Get down upon your knees and pick up a bone with your teeth. Arise and take as many steps forward as you hope to live years; then return to your starting-point and deposit the bone on the earth as you removed it therefrom." There is a Chinese superstition that extract of dandelion renews the youth, hair, and teeth. If you pick your teeth

with the nail from the middle toe of an owl, you will never have toothache.

It is one of the superstitions of the Rio Grande that if you cut your finger-nails every Friday you will never have toothache. The same idea prevailed among the Pennsylvania Dutch. A variant given me by an old nurse directs that you must never cut the finger-nails of a child before it is a year old, for fear it will become a thief.

In the "far East" it is believed that the child will be exposed to wickedness if its nails are cut during its first year, but after that age regular cutting on Friday preserves it from toothache.

The Tuscarora Indians had a custom which they supposed would keep the teeth in their normal condition through life. A snake was held at length by its head and tail. One should bite into it all along the back-bone from head to tail, and thenceforth perfect teeth would be your possession.

I have many other notes in my collection (some of which I have published) showing this to be a quite common custom. A charm to prevent toothache in Wiltshire, England, "is a want's (*i.e.*, a mole) fore-legs and one of his hind-legs worn around the neck in a bag." The Romans used to hang beads of coral on the cradles and around the necks of infants, to "preserve and fasten their teeth" and "save them from the falling sickness." This amulet was also a preventive for various ills. In Cornwall, England, toothache was speedily and permanently cured by biting from the ground the first fern that appeared "in the spring." In "The General Dispensatory Containing the Doses, Virtues, and Uses of the Simples and Compounds, 3rd ed., London, 1773," is the following:

"*Lapis Medicamentosus (the Medicinal Stone).*—Take Alum, Litharge, Bole-Armenic or French Bole, Colcothar of Green Vitriol, of each, three ounces; of Vinegar, a quarter of a pint. Mix and evaporate the moisture 'till they grow hard. The use of this is to fasten the teeth, preserve the gums, to heal and dry up wounds and ulcers. It is also employed in injections and eye waters."

Should these prophylactic measures prove inefficient, in lieu of the large number of "new remedies" which are continually putting in an appearance, let me recommend some of the following, which have at least the prestige of antiquity, and will probably, in many cases, be quite as reliable as some of our modern "cures."

Among the many musty tomes into which I have dipped is the first medical work printed in the English language, and entitled


The Breuyary of Helthe

—IMPRYNTE at LONDON—


in Fletestrete at the Syne
of the George next to
Saynt Dunstones church
by Wyllym Myddelton in the
yere of our Lorde
Mcccccxlvii
the xv daye
of July



The-97-Capptle doth shew of a mannes tothe

A tothe  ens is the latyn word. In greke it is named Odon. In englysh it is named a tothe. A tothe is a fenfyble bone, the which beyng in a lyvinge mannes heed hath felynge, and so hath none other bone in mannes body, and therefore the tothe ache is an extreme payne

C The cause of this payne

 This payne dothe come either by a humour descending out of the heed to the teeth or gumes, or it may come by corodyng, or eatyng of wormes, or it may come of corruption lyenge and beyng upon and betwyn y^e teeth, or it may come by drynkyng of hote wyne, eatyng of hote spyes, or eatyng of hote aples, pearces and such lyke, or it may come of a hote lyuer or stomake.

C A remedy

●● Fyrst purge the heed with pilles of cochte. And use gargaryces. And if it do come of any colde cause, chew in the mouth diuers tymes the roote of horehounde. And if it do come by wormes, make a candell of waxe with henbane fedes, and lyght it, and let the perfume of the candyl enter y^e toth, and gape ouer a dyffhe of colde water & then may you take the wormes out of the water and kyl thē on your nayle, the worme is lytle greater than y^e worme in a mannes hande and beware of pullynge out any tothe, for pull out one and pul out mo. To mundyfy the teeth waffhe them eury mornynge with colde water and a lytle roche alome.

In Newfoundland "toothache is charmed away by muttering certain words while applying the finger to the spot, or by tying so many knots on a fishing-line. But the most effective cure for it is a written charm inclosed and sealed up, the contents of which must be concealed from the party afflicted, and worn around the neck." The following is a copy of one of these:

"I've seed it written a feller was sittin'

On marvel [marble] stone and our Lord came by ;

And He said to him, What's the matter with thee, my man ?

And he said, Got the toothache, marster.

And He said, Follow me, and thee shall have no more toothache."

"A woman of Chance Cove, Newfoundland, said she had tried everything for this 'hell of all diseases.' She had worn 'Our Lord's letter' for a fortnight without avail."

In my collection these exhortations are in great variety, and from some such one as the following, used in Devonshire, England, they probably all originated :

"All glory! all glory! all glory! be to the Father and to the Son and to the Holy Ghost." "As our Lord and Saviour Jesus Christ was walking in the garden of Gethsemane, He saw Peter weeping. He called him unto Him and said, Peter, why weepest

thou? Peter answered and said, Lord, I am grievously tormented with pain, the pain of my tooth. Our Lord answered and said, If you will believe in me, and my words abide with thee, thou shalt never feel any more pain in thy tooth. Peter said, Lord, I believe, help my unbelief, in the Name, &c.

"God grant M. N. ease from pain in the teeth."

Amber was said to have great electric and medicinal power when worn as beads around the neck and pulse. It would cure sore throat, ague, and toothache, and would drive away snakes.

Buffon, in his "Natural History," says, "The people believe that a piece of the rope with which a criminal has been hung is a cure for quartan fever, colic, sciatica, and toothache." In Spain, to kiss an unbaptized child before any one else has done so is a panacea against toothache. In South Northampton, England, "A tooth taken from the mouth of a corpse, enclosed in a bag, to be suspended from the neck, was esteemed highly." In Staffordshire it was carried in the pocket. A Newfoundland man, as a last resort to cure this "ugly monster," scraped some dust off a tombstone and drank it in water, without effecting a cure.

Among the Indians of Connecticut, according to De Forest, "toothache seems to have been common; and Roger Williams records the ludicrous fact that, while they could endure every other pain with fortitude, this was too much for their resolution, and would make them cry and groan after a most piteous fashion." For curatives they employed sweating and purgative herbs, but placed most reliance upon "a set of men called *powwows*."

The natives of the Rio Grande made use of a tea of the little lemon-perfumed berries of the "colima." A favorite early English cure was to drive a nail, sometimes taken from a coffin, into an oak-tree.

In various portions of the world a worm is considered the cause of this dire malady.

In Germany the pear-tree was appealed to:

"Pear-tree, I complain to thee;
Three worms sting me."

The Chinese, as you know, believe in the worm, and in New Zealand this charm was used:

"An eel, a spineyback;
True indeed, indeed: true in sooth, in sooth.
You must eat the head
Of said spineyback."

Shakespeare says,—

"*D. Pedro*. What! sigh for the toothache?

Leonato. Where is but a humour or a worm."

In Derbyshire, to extract the worm, "a small quantity of a mixture of dried and powdered herbs was placed in a teacup or other small vessel and a live coal from the fire was dropped into it. The patient then held his or her open mouth over the cup and inhaled the smoke as long as it could be borne. The cup was then taken away, and a fresh cup or glass containing water was put before the patient. Into this cup the person breathed hard for a few moments, and then it was supposed the grub or worm could be seen in the water.

In Orkney toothache is called the worm, and, as a remedy, what is known as "wormy lines" is written on paper and carried about as a charm.

Among other resources may be mentioned: Rubbing the gums with an ant, bee, lady-bug, or fly, and carrying double nuts in the pocket. The spine of a dog-fish, kissing a mule, burying a tooth in the hole of a mouse. Carrying as a talisman the tooth of a soldier killed in battle, or that of a murdered man, or pricking the gum with a sharp twig from a sweet apple-tree.

Should all these fail and you desire to be rid of the offender, try this specific from a manuscript dated 1610, and published in the *Gentleman's Magazine*, 1835:

"*To Make an Aching Tooth fall out.*

"Take wheate meal, and mix thoroughly with milk of the hearbe called spurge, and make thereof a paste of doughe, with which ye shall fill the hollowe of the tooth, and let it be there a certain time, and the tooth will fall out of itself. Also, if you wash your mouth with wine wherein the root of this hearb hath bene sodden, you will never have payne in your teethe."

To close this section of "Tothe-Lore" without a brief reference to St. Apollonia would be an act of discourtesy to her memory, as she was believed to have great sympathy for all who suffered the torments of toothache and other pains of the jaw.

Part of her martyrdom consisted in submitting to barbarous extraction of her teeth at the hands of her tormentors, and it is naturally supposable that fellow-feeling made her wondrously kind.

Her emblems are described variously to be "holding a tooth in pincers; her teeth pulled out; pincers in left hand, tooth in right;

pincers alone; tied to a pillar and scourged. When Sampson Carasso bids Don Quixote's housekeeper to get him "something warm for breakfast and by the way repeat St. Apollonia's orison," the good housekeeper objects. "Dear me . . . the orison of Saint Apollonia, say you. That might do something if my master's distemper lay in his teeth, but, alas! it lies in his brain."

This is from Charles Jarvis's translation, edition of 1842, and the following note is appended: "The orison of Saint Apollonia (Santa Apollonia) was one of the *ensalmos* or magic skills to cure sickness, very popular in Cervantes' time." A Spanish writer, Don Francisco Berquizas, has gathered the words of this orison from the mouths of some old women at Esquiras. It is in short verses like a *sequidilla*, and the following is a literal translation of it:

"Apollonia was at the gate of Heaven and the Virgin Mary passed that way. 'Say, Apollonia, what are you about?' 'My lady, I neither sleep nor watch I am dying with a pain in my teeth.'

"'By the star of Venus and the setting sun. By the Most Holy Sacrament, which I bore in my womb, may no pain in your tooth, neither front nor back (*muela ni diente*) afflict you from this time hence forward.'

In the time of Henry VII. it is said of the teeth of St. Apollonia which cured toothache that they would fill a tun. Rings with teeth supposed to be those of this Saint were often worn.

According to Lady Wilde's "Ancient Legends of Ireland," many miracles were also performed by the tooth of St. Patrick which fell from his mouth when he was teaching the alphabet to the new converts, and a shrine was afterwards made for the tooth, that was held in the greatest honor by the kings, chiefs, and people of Ireland.

Query.—Did St. Patrick have Riggs's disease? It is stated in *Chambers's Book of Days* that "the jaw-bone of Saint Patrick, enclosed in a curiously embossed silver case, has been for years in the possession of a family in humble circumstances near Belfast. This relic has long been used for a kind of extra-judicial trial, similar to the Saxon *Corsnet*; a test of guilt or innocence of very great antiquity; accused or suspected persons freeing themselves from the suspicion of crime by placing their right hand upon the reliquary and declaring their innocence, in a certain form of words supposed to be an asseveration of the greatest solemnity, and liable to instantaneous supernatural and frightful punishment, if falsely spoken, even by *suggestio veri* or *suggestio falsi*."

"It was supposed to assist women in labor, relieve epileptic fits,

counteract the diabolical machinations of witches and fairies, and abate the baleful influences of the evil eye. It is not, however, of late years put to such uses, though it is still considered a most welcome visitor to a household where an immediate addition to the family is expected. "It was at one time said to contain five teeth, but now retains only one, three having been given to the members of the family emigrating to America, and the fourth was deposited under the altar of the Roman Catholic Chapel of Derriagh, when rebuilt some years ago."

I have entered so fully into those divisions of my subject so far treated this evening that I cannot, as I had expected at the outset, even touch upon many others of interest, and will content myself with simply naming a few embraced in my collection.

1. The teeth of man and various lower animals employed as charms, talismans, amulets, and remedies.

2. Teeth as weapons, articles of dress, and decoration among savages.

3. Decorative deformities of teeth among various tribes.

4. Teeth in literature.

5. Curiosities concerning the teeth of celebrities.

6. Phrases, sayings, and proverbs relating to the teeth.

7. Curious customs, myths, and superstitions regarding teeth.

8. Saliva, charms, and lore.

9. The mouth, lips, jaw, and tongue in folk-lore, and other miscellaneous subjects.

And should any one inquire why more were not presented, I will answer with an Armenian saying, "The fish was asked, Have you any news from the sea? He answered, Very much, but my mouth is full of water."

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PROPHYLAXIS IN DENTISTRY.¹

BY D. D. SMITH, D.D.S., M.D.

Is the process of disintegration of human teeth known as decay, which so frequently ends in complete destruction, wholly or in part preventable?

Many theories as to the cause or causes of dental caries have been advanced, and many ingenious methods invoked for arresting

¹ Read before the Northeastern Dental Society at Hartford, Conn., October 19, 1898.

decay already induced, but nowhere in dental or medical literature is there an attempt to satisfactorily answer this most serious and important question. It confronts the practitioner of medicine and dentistry alike in the mouth of infancy, childhood, youth, adult life, and even down to old age.

Modern medical science, with all its acumen, has thus far seemingly overlooked, as it has totally disregarded, the mouth and teeth as a constant and prolific source of infection in systemic troubles,—gastric, intestinal, cancerous, and pulmonary; and dentistry, engrossed in restoring the ravages of decay, has failed even to discuss, much less earnestly investigate, the subject of dental prophylaxis.

Although interested in dentistry for the past thirty-seven years, and directly in the current of its wonderful progress for thirty-two years consecutively, yet the writer must confess to undivided concentration on the same lines of effort which has characterized the work of the profession in general,—viz., mechanical restoration for teeth already decayed. Recognition of the utter impotency of the present methods of dentistry to cope with the extensive decay in the human teeth, as seen in the mouths of the suffering masses, has more recently stimulated to investigation and effort in the direction of the title of this paper.

Some startling statistics, also, coming to notice, may have had their promptings as the following: Examination of the mouths of the children of the public schools of the city of Toronto by a dentist, the inspections being systematized and extending over a considerable time, revealed that ninety-two per cent. of them were dentally in a pathological state and needing professional attention. A strictly accurate report on the mouths of the children in our public schools and families would, we believe, disclose a pathological condition in excess of that tabulated as existing in Toronto. From unrecorded examinations among the more careful families, extending over a period of years, it is my firm conviction that not three per cent. of the children in the average condition in life, have mouths and teeth in a strictly sanitary and hygienic state. And what has been said of hygienic and pathological conditions in the mouths of children will apply with equal force to the dental outfit of adults.

With these statements before us, let us look briefly at what dentistry is really doing for the community at large,—a matter, perhaps, as well illustrated in our own city of Philadelphia as in any place in the country.

Philadelphia is pre-eminently a city of homes, and has a population of about one and a quarter millions of people. Its houses, *not tenements*, number, it is said, some thousands more than the great metropolis before the consolidation.

It is estimated that only about four hundred thousand of the population receive any benefit at all at the hands of dentistry except the extraction of teeth. Not all of the remaining eight hundred thousand or nine hundred thousand are excluded from the benefits of dentistry through inability; some shut themselves out through fear, others through indifference, and some in inexcusable ignorance, fail of benefits at the hands of the dental profession. It is probably within the bounds of a correct estimate to say that one-half of our population are excluded through pecuniary inability.

The God-likeness of medicine is exhibited in its reaching out in one way or another, often without hope of compensation, to relieve suffering in the humblest of humanity.

Dentistry, in the nature of things, until the State or public bequests shall come to its aid, cannot imitate medicine in this, but we believe it can come to the aid of a suffering race in a most important way and on a grand scale, by presenting methods which are within the reach of the high and the low, for arresting the present rapid destruction of the human teeth. To accomplish anything in this direction there must first be recognition of facts, and then the creation of a literature to make them known.

One of the most recent works on dentistry—one which we ought to be able to point to with pride, “*The American Text-Book of Operative Dentistry*,” a work of six hundred and ninety-one pages of matter, written by fifteen representative men in the profession, and published in 1897; a work of which much that is commendatory may be said, is without a chapter or even a sentence, distinctively as such, on this subject. Illuminated with illustrations of instruments, appliances, methods of operating, good and bad, like other works of its kind, it deals largely with the mechanics of dentistry, and nowhere recognizes the more important matter of the prevention of decay in the teeth.

If we except one or two of the more important and really helpful papers, noticeably a letter in the January, 1898, *Items of Interest*, from Dr. J. L. Williams, of London, and a paper by Dr. I. N. Carr, read before the North Carolina State Dental Society in May last, it may be said that dental prophylaxis has failed to receive the recognition in the journals or before the societies which its importance demands.

The reason why so little interest is manifested in the subject seems obvious. Manufacturers of patent and secret preparations are taking the initiative, and through their wares forcing the matter into notice. Due largely to recommendation and prescription for lack of something better on the part of the medical profession, the public now has in quite general use one of the most inefficient as well as extensively advertised of the self-prescribing nostrums of the present time.

Some of the preparations now in use may be made to supplement in a valuable way the intelligent efforts of the dentist in the direction of prophylaxis, but each and all utterly fail, as they always must, to reach and remedy the *cause* of decay. While comprehensive claims for far-reaching effects upon bacteria and occult diseased conditions of the mouth and teeth are made for many, they bring but little comfort to the true investigator.

In the *Hospital*, a London publication, August 20, 1898, we find the opinion expressed that the modern physician is surfeited and embarrassed with the richness of the materia medica that is constantly poured out upon him by the manufacturing chemist. His experiments with new drugs leave no time for practical experience with diseased conditions. The editor says,—

“The present writer has a grievance—a real, determined, angry grievance—against England, Germany, and America. These are the three countries which deluge medicine with physiology, good, bad, and indifferent, but mostly bad; which flood it with literature in the shape of medical books, with no soul of either science or practice in them; and which ‘evolute’ new remedies, not by the score, but by the thousand annually, not one of which in fifty is worth even so much as a second thought. The inevitable effect of all this upon the average minds in the profession is either to suffocate and so to paralyze them with what appears to be new knowledge, or else to so disgust the practitioner that he makes up his mind never to read at all, and on no earthly consideration whatever to experiment with a new drug. Medicine, in short, is swamped, drowned, stifled, and paralyzed by innumerable exploiters within and without its ranks; exploiters whose only object is the shortest possible cut, not to fame and fortune, but to notoriety and pelf. Now, all this has an exaggerated sound about it. But, indeed and indeed, however exaggeratedly it sounds, it does not express one-tenth part of the miserable truth. The steady practitioner, whose aim is to supply his patients with the very best resources which the science of the times can afford, finds that about half his busy

hours are spent in the brain-wearing, and what should be quite unnecessary, operation of separating the precious from the vile."

This seems as applicable to the conditions existing in dentistry as in medicine.

The cause or causes of decay in human teeth may be and are complex and often difficult to satisfactorily explain; but one fact is established in the minds of all true observers,—viz., that decay of the human teeth results from the erosive or chemical action of external agents. Whether decay be regarded as chemico-vital (old theory), chemico-parasitical (Miller), a chemical change produced by minute organisms in the fermentable matter lodged upon and between the teeth (Carr), or whether it is, as some maintain, due solely to bacteria and their products, *all act from and upon the surface of the teeth.*

When Professor McQuillen demonstrated the existence of what he called interglobular spaces,¹ under the enamel and in the dentine of some teeth, it was for a time inferred that decay might in some instances have its beginning within the tooth, in the dentine. But when it was shown that these so-called interglobular spaces were imperfectly calcified, and not decalcified, dentine, the theory of internal decay lost its only support, and it now has but few advocates. All tooth-decay begins at and advances from the exposed surfaces of the teeth, and the work of decalcification moves forward on the line of the tubules just in proportion as the chemical forces acting externally are able to neutralize the vital force which has bound and holds the enamel and dentine as tooth-structure.

The resistance which the tooth interposes to decay-producing agents is wholly from two sources,—1st, the composition, make-up, or vital density of its surface; 2d, the influence of the living pulp in an endeavor to maintain the integrity of the tooth.

Pulp-action in some cases is so vigorous and energetic in opposing the encroachments of decay that new and denser material is deposited not only in the substance of the dentine, but in the pulp-cavity as well. This, however, is the marked exception, and by no means the rule. Pulp-tissue in general, acting for the conservation of the tooth, opposes but feeble resistance to the chemical forces in contact with the surfaces of the teeth. Decay of the teeth, then, may be regarded as a battle between chemical agents and the vitally organized tooth-structure, the strength and activity

¹ Czermak, 1850, was the first to describe "interglobular spaces." Tomes (Sir John), 1859, called these "areolar dentine."—ED.

of the contest depending entirely upon the affinity of the chemical for the elements comprising the tooth and the resistance offered by the consolidated tooth material.

This is strictly accurate in its application to the crowns of devitalized teeth. In teeth with living pulps the chemical action is modified only as the vital forces in the tooth tend to retard resolution. This being true, it is plain that a tooth will be wholly preserved from decay if protected on its exposed surfaces from all chemical action. Cover the crown of a tooth with a gold cap, for instance, embedded in one of the phosphate cements, and the tooth will be freed from all liability to decay, although it has been shown that the phosphate cements are not bacteria-proof. Silver nitrate is advocated as a barrier to the progress of decay; its action, like that of the phosphates, is to mechanically protect the surfaces to which it is applied. How, then, shall we relieve all teeth from liability to decay? Obviously by preventing the permanent lodgement of decay-producing agents, whether they be acids, alkalies, or bacteria, singly or in combination, upon the exposed surfaces of the tooth,—in other words, by giving tooth-tissue destroyers no time to chemically break up the vital combinations existing in enamel and dentine, and resolve their elements into new chemical compounds.

If we consider the condition of decay first encountered, generally induced and fostered by the dark-greenish deposit at the cervical margins, especially of the front teeth in the mouths of children, appearing frequently at two years of age, and continuing on to the age of twelve or fifteen, and even later, we find these mouths veritable crucibles, having in them a mixture of decaying foods, foul odors, natural and artificial acids, bacteria, and heat. It can be no mystery to any that nature's best endeavors are thwarted and completely defeated amidst such surroundings.

What prophylactic treatment shall be instituted and maintained in these and less marked cases? Dr. Williams, in the letter to *Items of Interest*, already alluded to, says, "I have repeatedly pointed out that in my judgment the greatest hope for the future in the saving of human teeth lies in the direction of prevention of decay by the use of germicides. [The italics are mine.]

"In my own practice I have relied chiefly upon a strong solution of hydronaphtol in oil of cassia. . . . This I use freely in all cavities, and then, before filling, I use a varnish of Canada balsam in chloroform in which there is a ten per cent. hydronaphtol. My patients use a dentifrice in which hydronaphtol and oil of cassia are the principal germicides. Decay in many instances has been

almost entirely arrested. I am, I believe, speaking with all due caution when I say that in my judgment two-thirds of the decay of teeth now going on is preventable."

Whatever of good there may be in these suggestions, they fall far, very far short of meeting the requirements of true dental prophylaxis. Permit an extract from the paper of Dr. Carr before the North Carolina State Dental Society, already referred to:

"Another established fact is that decay of the teeth is due to external causes. The process of destruction is from without inward. . . . Now, then, conceding the fact that the chief cause of caries is the presence of bacteria, it becomes at once our highest duty to apply some remedy for freeing the oral cavity of these destructive organisms, realizing that in a scientifically clean mouth there can be no caries." After setting forth these facts, Dr. Carr attempts a discussion of the irrelevant matter of foods for patients, arriving at the conclusion that "it appears to be out of the question to regulate the diet of our patients, except in case of infants and children whom we can control."

I have made this latter quotation to give emphasis to the erroneousness of this and similar sentiments which crop out from time to time.

The proposition that the dental profession in its present standing, deficient in medical training and lacking in influence, can or should assume to "control the diet of infants and children," trenches on the borders of absurdity, and panders to that spirit of self-adulation already over-cultivated. Had we the power, it would become us to give to every mother and every child a plentiful supply of healthful food, consisting of cereals, vegetables, nuts, fruits, and meats, and thus, and thus only, through diet, lay the foundation for good teeth. No special feeding is demanded for the teeth, neither will such feeding be tolerated by the general system. Foods that will make good bone, muscle, and nerve-tissue are equally good for the proper building of teeth.

It is much more commonly want of vigorous, healthful circulation in the tooth than lack of food-supply which gives rise to poor tooth-structure.

Teeth require use, exercise, stimulation, and, more than all, they require to be kept free from the paralyzing effects of external deposits. Dr. Carr says truly that "in a scientifically clean mouth there can be no decay." To effect this requires something more than germicidal washes, soaps, dentifrices, or even the so-called prophylactic brushes. Frequent friction and vigorous polishing on

all crown surfaces will alone accomplish it. This polishing is best effected with a stick—as orange-wood—and a suitable grit,—as fine pumice. Cleansing by such means insures removal of all injurious matter from the surfaces, compels change of environment, stimulates free and healthful circulation within the tooth, and induces the deposit of vitally organized, decay-resisting matter for enamel and dentine. The stimulation resulting from regular and persistent stick-polishing is entirely different from that cleansing which attends the ordinary use of dentifrice and brush.

None of the means commonly employed by patients, as the brush and dentifrices, dental floss and washes, implies *cleanliness* for the teeth, much less freedom from decay; but a regular system of surface-polishing with stick and grit gives positive cleanliness, effecting as it does the absolute removal of all deposits,—solids, semisolids, viscid fluids, and bacteria,—thus placing the tooth in the best possible condition to resist decay. The importance of this method of cleansing and stimulation in the mouths of children, commencing with the deciduous teeth at about two years of age, can scarcely be over-estimated.

It should be continued at intervals of about a week during the period of the temporary teeth, and maintained with equal regularity after the eruption of the permanent ones, gradually extending the time for cleansing to periods of three or four weeks on to adult life. The results from this treatment have proved uniformly beneficial.

Mothers taught the importance of caring for the teeth of children and instructed in this method may be armed with a good porte-polisher, orange-wood and levigated pumice, and have the preservation of their children's teeth in their own keeping.

Since the introduction of the multiplicity of felt and rubber wheels and disks for polishing with power, the hand porte-polishers have fallen into disuse, and none worthy the name are now to be found at the dental depots. A slight modification of the "Jack" porte-polisher, readily obtainable, would meet all requirements in this direction.

Power polishers, whilst justly accorded a place for polishing metallic fillings, are not adapted for reaching the surfaces of many teeth most needing attention, and they are contraindicated in the mouths of children.

Stimulation of pulp-tissue, resulting in improved tooth-structure, is a noticeable and most beneficial result of the process of hand-polishing herein described.

AMALGAM AND OXYPHOSPHATES AS FILLING-MATERIAL.¹

BY DR. C. W. STRANG, BRIDGEPORT, CONN.

INASMUCH as gold as a filling-material is excluded from deciduous teeth, inasmuch as we are all agreed that gold is not a fit material to use in immature and undeveloped permanent teeth, inasmuch as we have a large proportion of cases of persons who have inherited a fairly good set of teeth and by a systematic and judicious course, both upon their dentist's and their own part, have preserved them oftentimes until the threescore limit and even later, and then for some unknown cause or reason we are astounded on some occasions to find them rapidly failing, softening at the margins, fillings that have perhaps done duty for fifteen, twenty, or thirty years giving way. Inasmuch as we have many applying to us for treatment who have but little power of endurance, there is, you see, a large field where we must look for some other material than gold as a filling-material. I would not advocate any system of practice that would lower the standard of dentistry, but the question that we are called upon to solve is not what can be done, but what ought to be done.

The questions which come before us almost every day of our lives are, How may I permanently preserve the teeth of my patients? How may I maintain a high degree of excellence in my operation without inflicting unnecessary pain and suffering? Now, if gold must necessarily be excluded from a number of the operations that we perform, then the next question that comes to us is, What will take the place of gold? When I started in dentistry, over thirty years ago, we were chiefly confined to tin and gold as filling-materials. Tin preserved remarkably well in those cases which were not subjected to much stress or strain. But as years passed by, somehow or other, tin began to pass out of use. Those who had been taught to use tin passed over to amalgam, until, at the present time, we will hardly find a dentist in practice who resorts to tin as a filling. This, I believe can be attributed to the ease with which amalgam filling is inserted, and the care that must necessarily be used if we employ tin.

About ten years ago, the use of a combination of amalgam and oxyphosphate was suggested to me. I immediately began to experi-

¹ Read before the Northeastern Dental Association, Hartford, Conn., October 19, 1898.

ment in mixing amalgam and oxyphosphate. More and more I began to adopt this preparation for a filling-material in cases where gold should not be used. For instance, take the deciduous teeth. I think most of us are apt to underestimate the stress brought upon the molars. I have never seen a good amalgam filling in deciduous teeth that was a year or a year and a half old. Very often the naked eye can find fissures in the filling, or the amalgam may be broken at the edges. So far as my observation and experience go, there is nothing better to preserve deciduous teeth than the filling composed of amalgam and oxyphosphate of zinc. Using this material we may cut away from the grinding surface as much as we desire. But if this material is inserted much care must be taken to exclude all moisture from the cavity. Unless your cavity is dry, the filling will be worthless. But if you are able to get the cavity dry you may put in this filling with the assurance that, when you look at it a year hence, you will find it absolutely perfect at the margins.

Now, again, in regard to the care of the permanent teeth,—the unsolidified permanent teeth. We frequently find defects in the incisors as early as the tenth or twelfth year. I want to say that I regard filling the anterior teeth with gold prior to the age of eighteen or twenty as a species of malpractice. I do not presume to advise those men as old or older than myself, but I want to say to the young men, Be not hasty in introducing gold into the undeveloped, unsolidified permanent teeth. If I could take you to my own office, I could show you teeth that have been carrying pink gutta-percha fillings for over ten years, and they are perfectly preserved and in as good condition as they were the day they were filled. I use pink gutta-percha in anterior teeth, because I have found that it is more enduring. Of course, if the cavity is conspicuous, we must adopt the white.

About seven or eight years ago, a lady came to my office bringing her daughter, a girl of about thirteen or fourteen years of age. There were present in the girl's front teeth, or there had been in her incisors, five or six gold fillings. I found one gold filling tight in the cavity, one loose, and the others had disappeared. I asked the lady if she had insisted upon having gold inserted as a filling. She said that the dentist had done as he pleased. He had advised gold and used it. I told the lady that I should not advise gold, but would fill the teeth with gutta-percha and guarantee that, with occasional repairing, they would be as good five years hence as they were that day. So it proved, and the cavities are precisely

the same now as they were at least eight years ago when the operation was performed. This is simply a record of the uniform result of such cases. But when it comes to approximal cavities in molars and bicuspid, we frequently find that when the separator has been applied it would be impossible to introduce even gutta-percha without considerable excavation. For a number of years it has been my practice to get a little groove or, perhaps, two or three retaining pits and apply the amalgam cement. I have been surprised to find how remarkably these fillings preserve the teeth.

Take another class of teeth, teeth which by decay have become very weak. If we fill these teeth with gold, the enamel walls are so frail that it is necessary for us to remove about one-third or one-fourth of the crown, and to build a bevelled enamel wall means three or four hours of hard work. And it means a great strain upon your patient. Many are unable to endure this strain even if they are able to pay for the work. I have in my own practice been better satisfied with a fair removal of weak enamel walls and the use of the enamel cement. I advise the patient not to be reckless in the use of his teeth because they are weak. They may, with care, do good service, but are liable to break off. This method has been more satisfactory than to resort to the more heroic method of levelling off the walls and restoring with gold. From the experience I have had with the use of this preparation, I find it makes no difference what amalgam you use. Some amalgams make a very dark, some a fairly light filling, others a more homogeneous color. Some amalgams are preferable on account of the color. It makes a great difference as to what oxyphosphate is used. All quick-setting oxyphosphates must be excluded. It also makes a difference as to the dexterity with which you use it. Do not mix it expecting to fill two cavities with the same kind. When the preparation has been properly combined, you must insert it in the cavity without an instant's delay. Every instrument needed for the operation must be at hand, so that no time be lost. Unless this is done there will be danger of disintegration. My method has been, whatever amalgam I use, to put it into a mortar and add enough of mercury to make a mass so that it will not crumble if pressed between the fingers. When this is thoroughly mixed I use about one-third in bulk of the powder. Mixing this all together will give you a black mass. I then place on the tablet sufficient liquid to properly mix up the oxyphosphate powder used. When you get this into a mass similar to putty, it is ready for use, and should be put into the cavity as expeditiously as possible and pressure be

brought upon it. If an approximal cavity, use a matrix in order that pressure be made upon the mass. In the course of two or three minutes you can remove the band and trim to required shape. If the mass is of the proper consistency, it adheres to the cavity just as enamel does to the teeth, providing the cavity be kept dry.

I am not particular about getting in any undercuts. Generally the shape of the cavity is enough. The filling adheres so closely to the walls of the cavity that there is little danger of it being displaced. I do not recall a single instance in which the filling has been disturbed. The use of this material requires care. The cavity must be thoroughly prepared, just as thoroughly as for a gold filling. The instruments must be kept clean. Your slab must be kept clean. Anything foreign brought into this mass will cause it to disintegrate, and it would be better to throw it away.

Abstracts and Translations.

NAFTALAN.¹

BY DR. ROSENBAUM, OF ST. MICHAEL'S HOSPITAL, TIFLIS.

THE medical ointment naftalan is procured from a special and peculiar crude naphtha, differing considerably from any other raw naphtha in its physical and chemical properties. In spite of a high specific gravity of 0.960, this naphtha does not contain any resinous products, dissolves completely in ether, and burns with an agreeable aromatic smell, without leaving any residue. The flash-point of this crude naphtha is beyond 140°, and the point of freezing is 20° C. In the fractional distillation of this naphtha it does not give off light oils, such as benzine, kerosene (petroleum), etc., but immediately as first product (destillate) a heavy oil with a specific gravity of 0.890 is passed over. It can be distilled to dryness without noticing a trace of paraffin.

The place where this peculiar naphtha is found is situated in the Caucasus, at the foot of the Armenic Highlands, and has the Tartaric name, "naftalan." This place is also frequently called the "Holy Bath," because during the three hot months, since time

¹ A paper read at the Imperial Caucasian Medical Society.

immemorial, five to six hundred invalids come yearly, even from far distances, to bathe here in naphtha, seeking cure for all sorts of affections, more especially of diseases of the skin, wounds, rheumatism, gout, etc. The street hawkers of Persia and Asia Minor have always sold the naphtha as a remedy for men and animals.

Naftalan is an extract of this special crude naphtha, and contains the undoubted healing properties of the same in concentration.

This ointment and the oil used with it are prepared without employing any acid or free alkalies, and without admixing any animal or vegetable fat.

The ointment is of stiff consistency, but can nevertheless be easily smeared; it is absolutely neutral, almost odorless, and does not undergo any change, even if kept for years.

The high melting-point of this ointment, which is 60° to 70° C., is of special importance, as it will therefore not liquefy at any body temperature; it covers securely and well, and retains its stiff consistency even in the highest summer temperature. The ointment has, when viewed in reflected light, a dark color; and in a transmitted light a darkish yellow, clear and shiny appearance, and does not leave any stains on the linen after washing.

Naftalan does not mix with water and glycerin, but mixes easily with fat, and is soluble in ether and chloroform. As it never decomposes or splits up, it is excellently suited as a basis for ointments, more especially as it easily mixes with other ingredients, and, contrary to vaseline, is easily and quickly absorbed by the skin.

Naftalan shows strong antiseptic action, in so far that bacteria and their spores cannot exist in it. These are, in short, the so far known properties of the remedy in question. I suppose, however, that still further, up till now unknown, factors will come into consideration, explaining the intense, and in some cases unique, curing effect of this ointment.

Naftalan has been used extensively in St. Michael's Hospital, Tiflis, during the months of March, April, and May, with the following results:

(1) The remedy proved in all cases to be completely harmless, as I never noticed any damaging consequences or by-effects.

(2) It possesses wonderful soothing properties upon burns of the first and second grade, thereby preventing inflammation, and excels, therefore, in this respect all hitherto known remedies.

(3) It acted excellently in various diseases of the skin, especially

in acute and chronic eczema, pityriasis, seborrhœa capillitii, and psoriasis, in which cases the remedy produced a marvellous healing effect, even in cases where all other remedies recommended by science had failed.

(4) It favorably influenced the progress of the disease in erysipelas of the face, checking the progressing inflammatory process and reducing the temperature to normal on the second and third days, the patient thereby feeling very well.

(5) It develops an antiseptic, anti-inflammatory action, and accelerates the healing process in inflamed wounds and abscesses.

(6) It is soothing, is readily absorbed, and heals quickly in cases of bruising and sprains, even of long standing.

(7) In rheumatic and gouty pains the patients experience quick relief of the severe pains, and if its use is continued a complete cure is effected.

(8) It has reducing and soothing effect in cases of epididymitis, buboes, and inflamed lymph-glands.

(9) Lastly, naftalan was extensively employed as a basis in the preparation of our mercurial ointment (2 : 1), whereby it was found that the mercury could be more readily incorporated with naftalan than with fat and lanolin. The mercurial ointment prepared with naftalan was readily absorbed by the skin. It is sufficient to smear it on the parts with slight pressure; strong pressure is apt to cause furunculosis, which may be explained by the fact of the sebaceous glands becoming blocked by the mercury. The symptoms quickly disappeared on treatment with the ointment prepared in this way.

The best method to use naftalan is to spread a layer as thick as the back of a knife on linen, and cover the diseased part with it; or the ointment may be placed directly on the diseased part, and then cover with linen or cotton wool. Seeing that the ointment is quickly absorbed by the skin, it is recommended to use it twice a day.—*The Therapist*.

THE TREATMENT OF SUPPURATION BY BICARBONATE OF SODA.

BRUCKER (*Thèse de Bordeaux*) has made a study of a fact observed by himself,—namely, the influence of the reaction of the blood in the healing of certain conditions. Bearing in mind that the normal alkalinity of the blood shows important variations ac-

according to sex, age, and as to whether the blood is arterial or venous in origin, and the diet to which the patient has been addicted, and that in certain pathological conditions these variations are very marked, so that a reduction in the normal alkalinity is observed in certain cases of febrile reaction due to bacterial intoxication, he has found that certain artificial intoxications can be combated by raising the alkalinity of the blood by the injection of alkaline serum. Going on these grounds, Brucker has principally investigated the influence of alkaline dressings in the treatment of local inflammatory affections, and according to his observations such a dressing, whether moist or dry, very rapidly reduces the inflammation, suppurative or otherwise, and causes rapid healing of wounds. This seems independent of any antiseptic property in the proper sense of the word. The method employed by him is to apply the dressing of absorbent wool on ordinary principles, using merely a two-per-cent. solution of bicarbonate of soda, or in some cases vaseline and bicarbonate (1 in 25), or the soda may be applied directly in the form of a powder. He finds that strong solutions do not act more quickly than a two per cent., showing that the chief agent is the alkali, and not any antiseptic principle. The same method may be applied for purulent otitis, etc.—*British Medical Journal*, June 13, 1898.

Reports of Society Meetings.

NATIONAL DENTAL ASSOCIATION.

(Continued from Vol. XIX., page 817.)

THE COMPARATIVE METHOD OF TEACHING DENTAL ANATOMY.¹

THE wonderful collection of skulls and teeth exhibited at the Old Point meeting of this Association and the papers read bearing upon the subject afford gratifying proof of the growing interest in the subject of odontography, a branch of study which has great value as a contributory science, and which should be recognized in

¹ Abstract of paper read by Dr. A. H. Thompson.

the college curriculum as throwing light upon human odontology. The limited human denture has long been studied as comprising the whole range of the subject as taught in our schools, all the organs of the human body being studied as though man were a special creation, independent of all other forms of life. But this has all been changed; all life is now regarded as a unit, and man as but a very insignificant part of the realms of nature. He has no *kingdom* of his own; he is a vertebrate, like other vertebrates. He has no *class* of his own; he is a mammal, like other mammals. He has no *order* of his own; he is a primate, sharing this distinction with apes and monkeys; in fact, the skeleton of the higher apes resembles that of man more closely than that of the monkeys. The organizations of the lower animals should be studied in connection with that of man, for the knowledge to be gained by comparison of related types of structure. The paths of evolution have been marked out, and the life-history of the lower animals is now well understood. The story of the evolution of the type of man from the lowest forms has been revealed only through study by the comparative method. The human embryo recalls types of the lower forms at various stages of its development. This is also true of the various organs, of which much is learned through the study of their evolution, from the lowest organisms in which a suggestion of these organs may be found to the highest types.

The comparative method having been applied to the study of other organs, it is but rational that it should be similarly employed in the study of the teeth of man. The life-history of the teeth is of special interest to us as dentists, and we should consider it from the scientific stand-point.

The teeth are developed for a functional purpose,—that is, the reduction of food preparatory to digestion. From the study of the teeth of lower animals we learn that, morphologically, they are mere dermal structures, modified and elaborated for food-reducing purposes.

The variety of jaw movements is important from the influence that this force has upon the form and size of the jaws and masticatory apparatus, and its effect upon the forms and positions of the teeth. The adaptation of tooth-forms to the various kinds of food is wonderful and beautiful, and the various types illustrate the variations in the forms of the teeth as adapted to their varied functions: the incisors for cutting purposes; the canines as prehensile organs of extraordinary development and form in some of the lower animals, but greatly reduced in man; the molars as

crushing and masticating organs of greatly varying forms, adapted to various kinds of food.

The evolution of the jaws and of jaw-movements, and the principles of occlusion, a thorough knowledge of which is of such vital importance to us in our every-day operations, are greatly in need of illumination. We have studied only the jaws of man, which are but rudimentary as compared with the jaws of many other animals. We need to learn more of the mechanism of the jaws from animals in whom it is more highly specialized.

The relation of tooth-forms to jaw-movement is a most interesting branch of the subject, there being an exact relationship between tooth-forms and their functions and jaw-movements. It is a field which offers to the student great possibilities of discovery.

DISCUSSION.

In the discussion of this paper Dr. Barrett said that mastication of food is *not* the first function of the teeth; they are primarily weapons of offence and defence; secondarily, they are organs of prehension; thirdly, *perhaps*, they are organs of mastication.

Dr. Crawford cannot agree with Dr. Barrett that the human teeth were primarily organs of offence and defence. These questions should be studied from the stand-point of nature, in their bearings upon life, character, and civilization.

Dr. Thompson, in closing the discussion, said that he believes food-reduction for the nutrition of the system to be the primary function of the teeth, their function as weapons or tools being secondary, not primary. He referred to Dr. Walker's studies of the teeth and jaw-movements as having thrown much light upon the subject; he hoped he would do more work in this direction.

There being no lantern available for the exhibition of Dr. Cryer's slides, his paper was not read.

Section VIII. was not represented.

Section IX. offered one paper, by Dr. C. S. Case, entitled "Answer to the Criticism of my Paper entitled 'Principles of Force and Anchorage in the Movement of Teeth,'" of which we here present a brief abstract, as complete as possible, without the illustrations, models, and apparatus which accompanied the paper.

Dr. Case referred to the controversy of individual opinion which had arisen last year at the meeting of the American Dental Association, as to the action of force when applied to an extension

above the gingival margin of the crown of a rigid bar made integral with the crown of the tooth.

Dr. Case's methods are based upon the principle that when a force is applied anywhere upon such an extension, above and on the outside of the gum, it will have exactly the same effect as if applied to the root at a point on a line with the direction of said force.

To place beyond controversy this claim (which was disputed last year), Dr. Case had constructed an apparatus consisting of a large wooden tooth, suspended in an upright position by being attached along the posterior surface of the tooth to five steel spiral springs, which in turn are fastened to and supported by a frame.

These springs were so adjusted that a given power applied to each separately would produce the same amount of motion in compression or extension.

Force applied to this tooth in a manner similar to that which is possible with a dental regulating apparatus represents the direction and, approximately, the energy expended at different locations on the root, the movement being registered by hands on dials. To the anterior surface of the crown was an attachment, with an extension above the cervical portion, similar to that used by Dr. Case, with notches at different points for the attachment of power bars.

Power applied at the highest point upon the crown possible with an ordinary regulating appliance tipped the tooth from an upright position, the cervical portion moving in the direction of the applied power, the apical portion moving about one-fifth as far in the opposite direction.

Power applied at various points above the cervical margin found a place where the end of the root ceased to move in the opposite direction, remaining stationary as a pivotal point to movement in other parts.

Power applied upon the upright bar, at a point whose line of force intersects the root in the centre of its area of resistance, moved the whole tooth in the direction of the force.

The apparatus thus proves that force acting upon a bar made rigid with the crown and extending in front of the gum will produce the same effect as if applied to the root itself, and the same as if the space between the bar and the root were one solid mass, which was proved in the apparatus by inserting a properly shaped piece of wood, filling the space. The principle contended for was demonstrated by the apparatus, though allowance must, of course,

be made in its practical application for the varying stability of the surroundings of the natural teeth, influenced by the size, shape, and number of the roots.

Dr. Case also demonstrated, by means of a box of modelling clay and a rod, the direction of the force exerted by different portions of a tooth, as illustrated by a post driven one-half its length into clayey soil, illustrated and described, but not demonstrated, at the preceding meeting.

A mathematically exact demonstration would, of course, demand a medium absolutely uniform in elasticity and resistance, especially dissimilar to the surroundings of a tooth in the alveolar process; but the *principle*, which is most important and valuable, was demonstrated, proving that when power is applied at different localities upon the exposed portion of an incisor tooth, the relation of force exerted at different portions of the embedded end is practically maintained.

If, while retruding the crown of a superior anterior tooth, it is desired to protrude the end of the root,—to give fuller contour to the upper portion of the lip and naso-labial depression,—power should be applied at the extreme incisal end of the crown.

If, on the other hand, little or no forward tipping of the roots is desired, force should be applied at the gingival border. Upright bars, extending above the gingival border, afford opportunity for still other directions of force.

To the objection made to the employment of bands encircling the teeth, necessitating separation of the teeth for their application, Dr. Case stated that it was rarely necessary to do more than leave a piece of waxed tape between the teeth over night, his bands being rarely more than three- or three-and-a-half-thousandths of an inch in thickness, as five-thousandths of an inch, or No. 36 B. & S. gauge, is the thickness of ordinary ledger paper; the necessary separations, therefore, are not a matter of any great moment.

DISCUSSION.

In the discussion of the paper, Dr. John S. Marshall said that when Dr. Case had presented the subject to him, he had thought he was wrong on the question of leverage, but his exposition of the subject to-day has made a complete convert of him, and he desired to give testimony to that effect.

Dr. Guilford said that, while Dr. Case had undoubtedly accomplished fine results for his patients, he is not correct in the matter of principles of physics. Dr. Guilford also criticised the applica-

tion made by Dr. Case of a number of his illustrations, and also his use of terms which are absolutely unscientific. He also criticised the example of a rod working in a tray of modelling clay, to illustrate the movement of a tooth-root in the alveolar process, with the tissues of varying density and power of resistance.

Dr. Case, in closing the discussion, said that he was glad to have a man of Dr. Guilford's recognized ability point out his errors, but deprecated the criticism of illustrations which were not referred to in the present paper.

Section I. was recalled, and Dr. V. H. Jackson read his paper entitled "The V. H. Jackson Compensating Dental Bridge."

This new form of bridge, which is briefly described, is designed by Dr. Jackson for use in spaces between teeth having vital pulps and unbroken crowns, of such shape or inclination that the space between the tops of the crowns is less than that at the necks, and where it is not desirable to cut away the enamel to so shape the teeth as to have "parallel piers." He considers it "inexcusably bad practice" to cut away the enamel from vital teeth, where the desired result can be obtained by less destructive methods.

By the present method the bridge is made either with a saddle resting upon the gums or is suspended from the abutment teeth, and is introduced from either the lingual or the buccal or labial side of the arch, as determined by the angle of the teeth and the contour of the gum.

An accurate impression, and a very accurate plaster model of the teeth that are to be used as abutments, and of the gum between them, are essential, for which purpose Dr. Jackson has devised impression trays made in two parts, for covering the inner and outer sides of the teeth and gum. Bars are soldered to a flange on the one half, made to pass through cylinders soldered to a flange on the other half, so that when the two parts are pressed together, in taking an impression, the flanges slide by one another, over the grinding surfaces of the teeth. Before the impression is taken, the abutment teeth should be wedged away sufficiently to allow a collar to pass freely.

The impression having been taken and plaster model made, collars are fitted to the anchorage teeth of the model, broad enough generally to reach from the gum to the grinding surface, leaving one end about one-eighth inch longer than the circumference of the tooth. This extension of the collar is bent outward at a right angle and strengthened with an additional layer of gold, and has a hole through

it for the reception of a tap-bolt. The collar must be well contoured to fit the surface of the tooth. Several methods of drawing the collar tight around the tooth have been utilized. For most cases the tap-bolt and nut give the most satisfaction. They are made of hard, non-corrosive metal, and provided with a deep, strong thread, with the thickness of the nut about one-half or more of the lateral diameter of the tooth. In some cases funnel-shaped tubes are used for the reception of conical nuts. The bolt may enter from either the buccal or lingual side. A strong clip of plate-metal is made to extend from the collar to the grinding surface of the abutment tooth, to prevent the collar from slipping towards the gum. The clip should be stiff enough to withstand any pressure that may be made in mastication.

If the bridge is to rest in contact with the gum, a saddle of thin platinum, or platinum and gold, is swaged to fit the gum. When the collars and saddle have been accurately fitted to the model, porcelain teeth are backed, articulated, and waxed into place, and the parts united as in ordinary bridge-work; or, the collars and saddle having been adjusted, plain rubber teeth may be used and the case packed with rubber and vulcanized as in making a partial rubber plate. In suitable cases the Mason detachable porcelain crowns may be used.

For crossing the labial side of a cuspid, a loop of gold wire, flattened on the under side, may be used, marring the appearance less than a bar or narrow collar; the mesial, distal, and lingual surfaces of the cuspid should be well covered with a cap. One end of the gold wire should be threaded to pass through a tube and engage with the nut; the other end may be bent at a right angle to form a hook to catch in a hole on the distal side.

Before setting the bridge the teeth for anchorage are polished and made dry, and the inner side of the collars covered with a thick solution of chloro-percha. The collars are sprung backward as the bridge is adjusted; they are then drawn around the teeth and the tap-bolts screwed quickly to place. After the bridge has been made firm, the small openings around the heads of the screws may be filled with gutta-percha. In some cases a bolt with roughened surface can be retained with oxyphosphate cement, not depending alone on the screw-thread.

Dr. Jackson described in detail a large number of cases, and exhibited a number of models, with these bridges in position, showing the various applications of this method.

The paper was passed without discussion.

RESOLUTIONS AND OTHER MISCELLANEOUS ITEMS.

In regard to the proposed amendment to the patent law:

WHEREAS, The Supreme Court having already declared all such patents, as are contemplated in this move to amend the patent law, invalid, which makes all such amendments unnecessary; and

WHEREAS, The constant agitation of this question is detrimental to the best interests of organization in existence, be it

Resolved, That the National Dental Association, now in session, disapproves of any further work in this direction, and recommends that the whole question be dropped as unwise and unnecessary.

The following resolutions were offered by Dr. C. L. Goddard, in relation to the appointment of dental surgeons to the army and navy:

Resolved, That this Association approves and endorses the movement for the appointment of dentists in the army.

Resolved, That a committee of five be appointed by the president to represent this Association in procuring from Congress the necessary legislation.

The resolutions were referred to the Executive Committee, which, at a later session, reported as follows:

WHEREAS, The National Dental Association has appointed a committee to take charge of and have full control of the subject of legislation concerning the employment of dental surgeons in the army and navy,

Resolved, That this Association deprecates any independent action on the part of State and local societies or individuals without the approval of said committee.

Adopted.

The committee appointed consists of Drs. Finley, Donnally, and Butler.

In regard to the International Dental Congress, Paris, 1900, the following resolution was offered by Dr. A. W. Harlan and unanimously adopted:

WHEREAS, Provision has been made for holding an international dental congress in Paris, and committees have already been appointed to organize such a congress, and that it is the will of said committees that the National Dental Association appoint a committee to co-operate with those committees in making the congress a success, therefore be it

Resolved, That a general committee of fifteen be appointed by the president to co-operate with the General Committee in Paris, such committee to have power to add to its number, not to exceed twenty-five names in the United

States; and that said committee, when organized, be empowered to adopt rules and regulations such as will insure the success of the congress. The present president and vice-presidents of this body shall be members of this committee. After this committee has organized by the selection of a chairman and secretary, its acts shall be final, and, after the close of the congress, said committee shall present a report of its work to this Association.

At a subsequent session, the committee of fifteen, together with the president and three vice-presidents, was appointed, as follows: A. W. Harlan, Chicago; A. H. Fuller, St. Louis; H. J. McKellops, St. Louis; J. Taft, Cincinnati; H. A. Smith, Cincinnati; W. W. Walker, New York; James McManus, Hartford; W. C. Barrett, Buffalo; T. W. Brophy, Chicago; B. Holly Smith, Baltimore; W. E. Griswold, Denver; C. L. Goddard, San Francisco; L. L. Dunbar, San Francisco; H. W. Morgan, Nashville; Frank Holland, Atlanta; E. C. Kirk, Philadelphia; J. D. Patterson, Kansas City, Mo.; Thomas Fillebrown, Boston; Thomas E. Weeks, Minneapolis.

The Committee on the President's Address having recommended the adoption of a code of ethics, the chair appointed Drs. H. A. Smith (who was associated with Dr. George Watts in the formulation of the code of ethics by which the American Dental Association was governed for so many years), Frank Holland, and H. W. Morgan a committee to formulate a code of ethics.

Chairmen and secretaries of sections:

Section I.—I. N. Broomell, chairman, William E. Walker, secretary.

Section II.—S. H. Guilford, chairman; M. F. Finley, secretary.

Section III.—J. Y. Crawford, chairman; Frank Holland, secretary.

Section IV.—T. L. James, chairman; L. L. Dunbar, secretary.

Section V.—J. S. Cassidy, chairman; A. W. Harlan, secretary.

Section VI.—J. D. Patterson, chairman; L. E. Custer, secretary.

Section VII.—W. C. Barrett, chairman; W. F. Lewis, secretary.

Section VIII.—J. Taft, chairman; H. R. McFadden, secretary.

Section IX.—V. H. Jackson, chairman; C. L. Goddard, secretary.

Section X.—H. J. McKellops, chairman; M. B. Culver, secretary.

Dr. A. W. Harlan offered the following *standing resolutions*, which were unanimously adopted:

Resolved, That the secretaries of sections are required to forward to the chairman of the Executive Committee, sixty days before the annual meeting, the titles of papers to be submitted, with the names of the authors, in order that they may appear on the official programme.

Resolved, That the Executive Committee shall prepare and mail to the members an official programme at least twenty days before the annual meeting. This programme shall have a list of the hotels, the place of meeting, and the railway and steamboat facilities for getting to the place of meeting from the principal points in the United States. This notice shall be mailed to the journals at least one month before the annual meeting.

Dr. Molyneaux offered the following :

Resolved, That a committee of three be appointed, who shall prepare amendments to our constitution providing for an executive council, to whom all miscellaneous business shall be submitted without discussion before final action is taken.

Adopted.

Dr. Cassidy offered as a standing resolution, which was adopted, the following :

Resolved, That the outgoing president be a member of the Executive Council.

The chair appointed as the other two members of the Executive Council for the coming year Drs. Grant Molyneaux and John S. Marshall.

Result of the elections :

President (from the East).—Dr. H. J. Burkhart, Batavia. N. Y.

Vice-president (from the East).—Dr. S. H. Guilford, Philadelphia.

Vice-president (from the West).—Dr. Thomas E. Weeks, Minneapolis.

Vice-president (from the South).—Dr. B. Holly Smith, Baltimore.

(Age alone confers seniority among the vice-presidents.)

The following officers were all unanimously re-elected to their several offices :

George H. Cushing, recording secretary.

William Ernest Walker, assistant recording secretary.

Emma Eames Chase, corresponding secretary.

Drs. G. V. I. Brown, C. S. Butler, and J. Y. Crawford were elected members of the Executive Committee in the places of Drs. C. N. Peirce, W. P. Dickinson, and George Eubank, whose terms expire with the present meeting.

Niagara Falls and Boston were placed in nomination for the place of next meeting, Niagara Falls being chosen. By a unanimous vote the time of meeting was changed to the first Tuesday in August.

The Executive Committee appointed Dr. L. E. Custer, of Dayton, Ohio, to deliver a general address on "Electricity," and Drs. T. W. Brophy and Thomas Fillebrown to deliver an address on "The Surgical Treatment of Cleft Palate."

Publication Committee: C. N. Johnson, Chicago; C. N. Peirce, Philadelphia.

Local Committee of Arrangements: C. A. Butler, D. F. Bentley, Buffalo, and M. O. Cooley.

Committee on National Museum: Williams Donnally, Washington City, Henry W. Morgan, Nashville, and John S. Marshall, Chicago.

AMENDMENTS TO THE CONSTITUTION.

The proposed amendments to the constitution, laid over from last year, (1) by Dr. J. Y. Crawford, to change the name of the Association to "The American Association of Dental Surgeons;" (2) by Dr. S. H. Guilford, to change the name to "The American Association of Dental Science;" and (3) by Dr. Stellwagen, to "The American Stomatological Association," were all tabled.

The following amendments, proposed by Dr. M. F. Finley, lay over for one session, and were then unanimously adopted:

Amend Section 1, Article IV., by inserting after the third word, first line, "and the societies bearing the names of the Territories enumerated in Section 3, Article XII."

Amend Section 3, Article III., by inserting after the first word of the third line, "and Territorial."

The following amendment, offered by Dr. H. J. Burkhart, lay over one session, and was then unanimously adopted:

Amend Article VI., second paragraph of Section 3, to read, "commencing with 1897, the president shall be chosen from the division in which the next meeting is to be held."

The following amendments, embodying the suggestions in the president's address and recommended by the Committee on the Address, were read by Dr. H. W. Morgan, but were not acted upon:

Art. VI. shall be amended so as to read, "After 1898 the president shall be chosen from the division in which the next annual meeting is to be held."

Article III., Section 3, shall be changed so as to read as follows: "They shall be chosen in any manner that their Association may see proper."

In Article IV., Section 1, the word ten shall be changed so as to read "six."

The following amendments, offered by Dr. Laurence Leonard, lie over for one year:

"*Resolved*, That Article V. be amended by adding after the word dollars, "the receipt for which will entitle the holder to all the privileges of the floor, including general meetings of the Executive Committee."

Article VIII., Section 1, after the words "Association to whom," add "and before whom all business matters shall come."

Article VIII., create Section 10, "The Executive Committee shall elect a president and secretary, and shall hold daily general sessions during the meeting of the Association."

Create Article XV. as follows: Section 1. After 1899 nothing shall come before the general sessions of the Association except the president's address, announcements, election of officers, selection of place of meeting, and the reading and discussion of scientific papers endorsed by the sections.

Section 2. Anything in conflict with this article is hereby repealed.

A communication was received from the Northern Illinois Dental Society, reporting the adoption by that body of resolutions looking towards a remedy for the existing evils regarding the interstate practice of dentistry, and requesting the National Dental Association to work in securing such modifications of the dental laws of the various States as shall enable competent practitioners to remove from one State to another without being compelled to submit to provisions which are eminently unfair to large numbers of capable dentists.

The communication was referred to Section 2.

Adjourned to meet at Niagara Falls the first Tuesday in August, 1899.

AMERICAN ACADEMY OF DENTAL SCIENCE.

DR. GEORGE S. ALLAN read a paper before the American Academy of Dental Science, May 4, 1898, entitled "Independent Journalism from a Dental Stand-Point."

(For Dr. Allan's paper, see Vol. XIX., page 761.)

DISCUSSION.

Chairman Pond.—In the discussion of any question involving our advancement as a profession we have often received words of

encouragement from members of a profession which always stands for the right. We have with us to-night a gentleman whose studies of the Puritans in England and New England will give added weight to his opinions with us, of New England birth. I refer to the Rev. E. H. Byington, D.D., of Newton.

Rev. E. H. Byington.—It will not be possible for me to add anything of importance to the very interesting discussion which we have listened to. I find that I did not understand at all what was meant by "independent journalism." I supposed that "independent journalism" meant something like the independent journalism which we have in the city of Boston, in a paper like the *Boston Herald*, which is more or less independent of all political parties, but not by any means independent of its subscriptions. The editorials and whatever is of interest to the reader is supposed to be unbiassed and independent in character. I find, after hearing the paper, that you are dealing with a subject which is very much more scientific and genuine.

I could almost have thought, while the paper was being read, that I was in a meeting of ministers, so high was the ethical tone of the paper, so constant and careful was the reference all along to the highest moral principles, and so desirous was the speaker to set forth the truth in regard to the matter. The fact is, gentlemen, in the profession which I represent we have a good many questions that are constantly coming up very much like this question that is before you. There are depots and bases of supplies which are closely connected with the theological profession, and there are sometimes presented in religious journals articles which, when the truth comes to be known, are found to have been shaded by mercenary motives; and it is not possible, even among ministers, to avoid those tendencies to which the selfish instinct within us constantly exposes us.

I wish you great success in the effort that you are making to bring the very highest principles into all these matters relating to your most useful profession, and I hope that in my own profession we shall be able, if not altogether to eliminate this tendency to pecuniary motives, at least to hold the evil influence in check.

Chairman Pond.—I am sure all of the older members of this society remember Dr. H. C. Meriam, who was formerly one of our prominent members, and you also know the stand he has always taken in matters of this kind. We have Dr. Meriam with us to-night, and would be very glad to hear from him.

Dr. Meriam.—It is rather a hard thing for me to say anything

new on this subject. The president kindly alludes to a strong stand that I took in some previous years. I can assure him that in the semi-retirement that I have enjoyed for the past few years it has often seemed to me that I was entitled to a good deal of credit for not saying "I told you so." But the time has gone on, and I think that every one who has really interested himself has noted with great satisfaction the progress which has taken place in this direction. Mr. Whittier once said that he could conceive of nothing better for any young man than early in life to connect himself with some unpopular or neglected cause and press it to the front, and stick to it until it received the attention that the world would not otherwise give. There has been a gradual recognition of the fact that if dentistry is to be a specialty of medicine, it must have the same means of independent expression which the other specialties have. I venture to say that there is no specialty of medicine where the members do so much work, where they pay so much for the materials which they use, or where their work is done with such a strain on physical health and vigor.

You may remember that in an earlier paper—I think the very first paper that I wrote on this subject—I said we had no reason to complain of the shops. They were the delight of student days, and even now we can exclaim, as did Goldsmith of his muse,—

"Thou source of all my bliss and woe,
That found me poor at first and keeps me so."

And right here we touch again the side of the intellectual enfeeblement of our profession. The man who to-day can stand in any one of our shops and say that the dental materials are in advance of those of any other profession is an ignorant man. Let him but step into the shops where are exhibited scientific, electrical, surgical, or chemical apparatus, and he will find things that are infinitely more wonderful than are offered in our shops. I am sure that statement will be fully corroborated by Drs. Allan and Andrews.

Our duty is to keep an open door so that all progress relating to anything we need to do or use is not impeded. There is a tendency to teach in the dental schools the use of only such things as can be bought ready made, so that the students have a limited idea of the resources open to them. To buy ready made things and then trim the patient until they fit does not broaden men or develop their reasoning powers.

Dr. Potter.—It may be known to some of you that a few of us

have been off on a short visit to New York. It has not been simply for pleasure. We had a very important meeting there, which was arranged by the Institute of Stomatology. We devoted a whole afternoon and evening to the discussion of professional morals, professional atmosphere, and all those things which Dr. Allan has summed up in his paper. I consider it is one of the most important dental meetings I have ever attended. At the close of the meeting there were a set of resolutions proposed and adopted as expressing the sense of the meeting on these important matters, and later the chairman, Dr. Bogue, asked me to bring this set of resolutions to the Academy and read them, to show what the Institute of Stomatology had been thinking about and doing, and with the hope that these resolutions might find a ready response in this society. I think I cannot do better than to read the resolutions at this time.

Dr. Potter then read a series of resolutions adopted by The New York Institute of Stomatology, May 3, 1898, and printed in the *INTERNATIONAL DENTAL JOURNAL*, July, 1898.

Dr. Andrews.—I make the motion that those resolutions be adopted as the sense of this Academy.

Unanimously voted.

Chairman Pond.—There is one more gentleman whom we are always glad to hear from, and who always takes an advanced stand on questions of this kind. I refer to Dr. Charles A. Brackett.

Dr. Brackett.—I feel like expressing a somewhat different view regarding the dentist—his moral quality, his position in the community, the way he is looked upon by his fellows—from that which the paper presents. Without any disposition to detract from any other profession, I do not think the dentists of this city, the dentists of this commonwealth, of New England or New York, are men who occupy a lower moral plane, with less thoroughly ingrained genuine morality, with a lower standard of ethics, personal or professional, than are the holders of the M.D., or other professional degree. Now, in the city in which I am a resident we have a worthy group of medical practitioners who deserve and command the respect and confidence of the community. We have a good number of practitioners of dentistry whose standing in the community is as honorable as that of the practitioners of medicine. I do not think any patient of any dentist in the city of Newport going to another dental practitioner would receive from any one of the twelve or fifteen located there any advice, hint, or insinuation that would not be honorable. I do not think there would be any attempt to hold out any inducement to continue in his charge. I

think there would be more readiness to advise the patient to go back to the dental adviser to whom he or she had been accustomed to go. I do not think our code of ethics is wrong. I do not think the nature of the practice of a dentist, having as much as any professional man can have the need of blind, unquestioning confidence on the part of those whom he serves, will admit of the moral standard being in any sense lower than that of any other body of professional men.

I expected that the essayist would have something to say in regard to our personal duty in connection with independent journalism. He has not come here with any word of upbraiding, such as "You have not stayed up our hands," or "You have not done for us as we expected," and yet I hoped he would point out some of the things that we ought to do to favor progress in the right direction. Too many of us are not as helpful as we should be in sustaining our journal. It would be well for us to ask ourselves, "What can I do to assist in advancing this cause?" One of the essential helps for every enterprise is money. A good share of the income of most periodicals comes through the advertising. As has been well suggested by our friend from Salem, there are many sources other than the special dealers from which we may advantageously obtain an extended variety of supplies. We should use our influence to have those who can furnish materials, tools, and instruments useful for us make themselves and their wares known through the advertising pages of our journal. The advantage would be mutual.

The INTERNATIONAL DENTAL JOURNAL has always had high merit in its reports of society meetings and in its extended original articles. It has been said that it might do better in having, in addition, more short, simple items not requiring much energy to write or to read, but which would be practical suggestions. It is in the power of every dentist to make, within the compass of a few lines, a half-page, more or less, reports of cases, suggestions about doing certain things and overcoming difficulties, that would be useful to others. If we will, each one of us, two or three times a year, contribute ten lines to the JOURNAL, the aggregate will be a large mass of material that will increase its attractiveness and be a great benefit to all concerned.

Dr. Briggs.—I was very much interested in Dr. Allan's paper, and heartily concur with him in all that he has said; and it seems to me that anything that we could do to prevent the domination of the trade journal is of the greatest advantage. The question of

the ways and means of doing it is a complicated one, and I do not intend to go into it; but there is one point in particular that I want to bring out, and that is in regard to the education of the dentist. If he starts with an education as an all-round man, dealing with a specialty of medicine, the thing will work itself out in time.

Another thing I wish to refer to is the domination, the control, and the dependency of the dentist on the dental depot, and there again the education of the dentist comes in. It is simply the habit of following in the ruts of custom or tradition that has allowed men of the dental profession to be led about, dominated, if you please, by the dental depot. I have had that same thing said to me that Dr. Allan remarked as having been said to him,—“What would you dentists be if it were not for what we have manufactured for you?” It is a fair sample of what we as dentists may have said to us. It does not take much intelligence to see that we have made the manufacturing companies, and not they us. At the same time, we are to blame for the way that we allow them to dictate to us, and, as it were, adopt us, tell us what we want, what we should do, and what we shall have. I think, perhaps, we lack a little dignity in our dealings with them.

Dr. Fillebrown.—Dr. Allan referred to the means of remedying this condition. I think he made a good point in quoting the Century Dictionary. I think that definition is in accordance with the general public estimation of the dentist, and it is also true that the medical profession judges the dental profession in the same way. There are notable exceptions in both cases, of course. The paper also alluded to the fact that if the medical profession could know more of dentistry, that there would be the commencement of the remedy. It seems to me that this is not only the beginning of the remedy, but it is the one essential feature of it. I am glad I have an opportunity to talk to medical men about this matter to-night. I wish to call attention to and emphasize the ignorance of the medical profession in regard to the diseases of the human system which are dependent upon the teeth and their conditions. There is a most lamentable ignorance in that direction. This is not a reckless statement. My relations to the surgical clinic in the Harvard Dental School has brought this fact very strongly to my attention. I have known cases in the hands of some of our best surgeons in New England which have failed to be cured, but which have been readily cured at our clinic. One of them was a case of a patient with disease of the antrum that had rendered him utterly incapable of doing business. His antrum had been opened two or

three times and treatment prescribed, but no relief was obtained until he came to our clinic. Eight badly abscessed roots were found, one or more of the abscesses discharging into the antrum. The removal of these roots and the treatment of the antrum enabled the patient to resume his work in a short time. Now, if that surgeon had known one-quarter as much about the teeth as he did about the other parts of the body, he would not have made that mistake.

An eminent surgeon took a man suffering from an abscess caused by the root of an inferior molar,—and only half a root at that,—and operated on him twice for necrosis, leaving big scars on the jaw. That patient finally came to what medical men regard as a second-rate institution,—a dental infirmary,—and received complete relief. So long as such ignorance prevails we cannot expect medical men to understand the position of dentistry. I could multiply these two cases by twenty without any exaggeration whatever. If our medical schools will insist that physicians shall know as much about the relations of the teeth to the various parts of the human system and the influence of their diseased conditions as they do about the effect of other diseased organs on the body, we shall then have a physician who will respect dentistry, and who will be a great deal more of a man himself. So long as our medical schools ignore a part of the human system, and neglect to instruct their students as to what its relations are, just so long will this unsatisfactory state of affairs exist. This is what I have preached for twenty years. We should be educated as medical men are, and each student be given particular instruction in regard to the specialty he intends to follow. Now, if the Harvard Medical School will add to its curriculum instruction in regard to dentistry,—a thing which they ought in all common sense to do,—and shall insist on as good a percentage in that course as in other studies, the time will not be long coming when patients will suffer less and dentists will be respected according to their ability.

Dr. Bradley.—It was my intention not to say anything, but the remarks that have been made call to my mind the fact that in preparing for the alumni exercises next June the committee of management have arranged for a series of papers and discussions, and one member of that committee has this evening spoken to another member about writing a paper which will treat on ideas very similar to those suggested by Dr. Andrews this evening, such as professional etiquette, not only in relation to how we should conduct ourselves in meeting brother operators, but in relation to how

we should meet our patients and talk with them in reference to their former dentists or professional advisers. And I venture to say that in the school with which the gentleman is connected there is much indirect teaching of professional ethics as to what the student or dentist should be, and the building up of a professional character. It is indirectly done, but I sincerely believe that a great deal of the best instruction is given indirectly. A young man sometimes takes up with suggestions that are made indirectly, when the direct instruction is neglected.

From the paper and the discussion which we have listened to this evening it appears that we are striving for the ideal; that no profession has attained to it, as we have learned from the remarks of members of the medical profession and of the clergy, but we are all striving for the ideal. We need a higher ideal of the laity, as well as for the professions. It will take a long time to inculcate among them those principles which are necessary to those wishing to become useful citizens and desiring that which is best for themselves. I am encouraged to think, from my observations in this direction, that the trend is towards a higher ideal,—to leave the lower standard and come up into a higher plane of living. I think the American Academy of Dental Science has been active in working towards this ideal. It is within a few months that resolutions, framed by a member of this society, were passed, condemning the advertisement in the professional journals of nostrums and secret preparations; and I am also persuaded to think that it was that action which has started this agitation in favor of independence in dental journalism. I therefore feel that there is encouragement for us to go forward in the work of striving for a higher ideal in our professional life.

My good friend, Dr. Brackett, asks what we can do to favor our progress in these matters. Just this: see that the colleges carry along with them in their instructions to their pupils this helpful higher influence, and when they graduate give them helpful, strong literature that will reflect all that is best and highest in our profession and keep the degrading influences in the background.

Dr. Bradley.—Mr. President, I wish to move that a hearty vote of thanks be extended to Dr. Allan for his admirable presentation of this subject.

Vote passed.

Dr. Allan.—I feel very much pleased, gentlemen, with the kind way in which you have taken my paper. I assure you most earnestly that I believe the main idea, the essential idea, is one

that in the end will be adopted by the profession at large. I heartily regret that my good friend, Dr. Brackett, should have put a meaning on some few things in it which were so different from what I believe and from what I intended to say. I certainly would not have said anything to any one that would have carried with it the suggestion that I had lost my respect for my profession in the slightest degree. My knowledge of the profession and of the honorable stand which it has taken in all questions of professional ethics, the high-minded way in which the members deal with each other, would not allow my thinking for one moment in the way my friend has suggested. I therefore beg that the doctor will deal with me kindly in that important particular. I take it for granted that my language was a little blind to thus put me in the position of being misunderstood.

Having written my paper and read it over, I wanted to throw it into the waste-basket, and if I had had a little more time to write another I certainly would have done so. Perhaps the trouble was that I tried to present the whole subject to the profession in one short paper. I could touch only on a point here and there. What I said about trade influences, the depots of supplies, I think was wholly true,—I do not know that I would want to change anything in that regard. There is no question whatever but that the profession has been staggering under a load of trade influences that from the beginning of our course in this great country has been a burden, an incubus, and an obstacle in our progress in almost every direction. I am thankful to believe that the profession to-day recognizes that fact, and stands ready to throw the burden off just as soon as a possible way is open.

What I should have done, could I have rewritten that paper, would have been to have said just this: we are creatures of heredity and environment. The old German saying has given greatest importance to the first. It goes something like this: "In man's development, a child should be very careful in selecting his parents." He ought to be, but unfortunately it is not in his power. But the body of man is the resultant of two forces, heredity and environment. We cannot change our heredity and we do not want to. We are a component part of the great body of medicine,—that is, dentistry is simply a part of the healing art, which is a fact that is coming to be more generally understood, and in the end will be recognized as universally as the law of gravitation. What we are we must be, and in a short time those articles and discussions on such subjects as "being a trade" and "sufficient unto ourselves,"

and all that sort of trash, will be relegated to the waste-basket of useless thoughts and intellectual rubbish.

The idea I would press, were I to write on this subject again, would be that the environments of the dental student should be such that when he leaves his college where he has acquired his education in dentistry, he will take his position naturally, easily as a member of the medical profession. His specialty will be dentistry. The aim and object of which is the medical and surgical care of the teeth and their adjacent and relative parts, and in his studies he should grow up in the atmosphere of the profession of which he is as really a part as the oculist or the aurist. How is it now? I have taken particular pains to inquire and I find it far different. The student of dentistry does not grow up with the idea that he is to be governed by moral and ethical laws to the same extent as the student of medicine, nor to anything like it. He is taught to a great extent that dentistry is an art, a science, something related to medicine, but not medicine; he is to practise on different lines, in a different way, and the whole atmosphere in the dental colleges, so far as I know, is hurtful instead of helpful to the professional instincts of the student when he goes out into the world to practise his calling. Therefore, I say, there cannot be too careful attention, too earnest endeavor, given to this fact in our profession. The student must have his environment such that, when he leaves his institution of preliminary training he will take his proper position in the professional world.

When the student receives his diploma, that is not all. His education must continue. The practitioner cannot remain at one point, he must either go up or down, one way or the other, and the fountain-head of all his instruction, from the time he leaves college, that source from which he is to derive his intellectual food, is the dental literature that comes into his hands, and I regret to say that the major part of that is under the control of the dental depots, with the natural trade ways which they adopt in the conduct of their business. They have a perfect right to employ the means that are common to the business world; to put their advertisements where they will find customers; to buy up all the current literature obtainable, also patents by the half dozen or dozen relating to one subject, and to select whichever is most profitable for them to manufacture and pigeon-hole the rest, thus depriving the profession of hundreds of useful, important, valuable ideas, which if they had not been patented, but placed on the open market, would have been of the greatest help to us. I am not

finding fault with them, nor do I for one instant claim that the general law effects us more than it does them. The special code is what I want to give emphasis to. The moral law is the same for every man, in whatever capacity he may be placed, but we have the express law which says that a man who works for humanity should not bottle up his thoughts or take a royalty on the product of his invention, but should give freely to his profession whatever thoughts, invention, or discoveries he may have made for the benefit of suffering humanity.

So, I say, keep this literature free, keep it in a position where it will not be influenced by pecuniary motives. Just in proportion as you respect yourself will your neighbors respect you.

WILLIAM H. POTTER,

Editor American Academy of Dental Science.

NORTHEASTERN DENTAL ASSOCIATION.

THE Fourth Annual Meeting of the Northeastern Dental Association was held in Hartford, Conn., Wednesday, October 19, 1898.

The meeting was called to order at eleven o'clock by President D. B. Ingalls, Clinton, Mass.

The records were read by the secretary, Dr. E. O. Kinsman, and accepted by the society.

Dr. L. C. Taylor (Hartford, Conn.).—Mr. President and gentlemen, I have been requested by not less than three of our society advocates to present the same subject here that I presented before the State Society. I am well aware that you may consider it ancient history, but it is history which interests us all. It is the matter of interstate registration. There is a growing unrest in the dental profession everywhere, caused by dentists who desire to go from one State to another, being obliged to pass a new examination before they are allowed to practise. This has had the mistaken effect of making all our laws unconstitutional. Dentists believe their State law is unconstitutional because the United States will not tolerate it. I want to sustain the State laws, and for that reason I have consented to go over the same ground that I did before. This was brought to my notice by a friend in Chicago. Permit me to read his letters. [Letters read.] They advocate forming laws which will allow a person who is a lawful

practitioner in one State to have the same right in any other State, and advise the State of Connecticut to take up the matter.

And bearing on that point, I wish to read a little extract from what Dr. Truman said a year ago last August, at Old Point Comfort:

"The final outcome of this legal tendency has been laws in every State, a National Association of Dental Examiners, and a general feeling of disquiet among all teachers of dentistry as a consequence. Whether this product of the nineteenth century is to result in the good anticipated by those who worked for it remains to be seen; but it is hoped this Association will see the way clear to formulate something that will tend to quiet antagonism engendered by the unwise multiplication of statutes. The subject is a large one, and has frequently claimed the attention of my predecessors in office. As these laws at present stand, they are a dangerous obstacle in the path of professional progress, and promise to be the one blot upon the otherwise fair fame of the century in dental work. This applies not specially to individuals, for it is recognized that it is mainly the outgrowth of a mistaken sentiment that force, through law, will accomplish everything. The aim should be for unity of effort with the least friction, State with State, accompanied with a positive recognition that the decree of one State should in this matter be a law for every citizen of the United States. The Constitution of the United States expressly declares, Article IV., Section 1, 'Full faith and credit shall be given in each State to the public acts, records, and judicial proceedings of every other State, and the Congress may by general laws prescribe the manner in which such acts, records, and proceedings shall be proved, and the effect thereof.

"Section 2. The citizens of each State shall be entitled to all the privileges and immunities of citizens of the several States.'

"These quotations are apparently clear, and unmistakably point to two facts,—that full faith and credit shall be given in each State to all the acts of every other State. . . . It is therefore clear that a law passed depriving a citizen who has been declared legally entitled to practise in any State from the privilege of registration in another State is unconstitutional, . . . and it is difficult to understand how the Supreme Court of the United States could decide otherwise if a case should be carried before it for adjudication."

These are the words of the president, and the National Dental Association at the first day's session offered a resolution stating that if a person in good standing presents a certificate from any State, he

shall be allowed to practise in any other State without an additional examination. This was adopted. I do not propose to make long remarks, but I hope this will be brought forward after lunch, and that it will bring up quite a discussion when brought in legitimate form. I hope to have a committee appointed to put it in good shape. My thought is contained in these words: *Resolved*, That it is the opinion of this society that the different States shall make an interstate law, which shall conform to the Constitution of the United States by recognizing the judicial acts of all the other States, and admitting dentists to practise when the same right has been obtained in any one of the United States.

Dr. Charles McManus was here called upon to read his paper on "The Need of a Dental History."

THE NEED OF A DENTAL HISTORY.

BY CHARLES M'MANUS, D.D.S.

A very few of you may remember that at the last meeting I called attention to a resolution adopted by the National Dental Association, "That a committee be appointed to report a measure looking to the preparation of a full history of the dental profession," and that on the strength of being chairman of that committee I read a paper entitled "One of the Present Needs of the Profession, a History."

I had hoped at that time to get an expression of opinion on this subject; but the paper, being presented with others after the evening banquet, was not discussed.

Well, a year has gone by, and the dental profession has been hard at work making all sorts of history; but the committee cannot report very much progress as yet in the matter of recording it. It is the intention, however, to make a full report on this subject at the meeting of the National Dental Association at Niagara Falls next August, and it is in the hope of awakening an interest in this really important matter that I bring it up now before this representative New England Society.

The early history of dentistry is to be found scattered here and there in the pages of old magazines and in a few privately printed pamphlets. It has that peculiarly dental quality of being inaccessible.

It has been gathered together in the following small books: by Duval, 1808; Fitch, 1829; Snell, 1832; Harris, 1849; Dexter, 1876; Cegrand, 1892-93; Lennmaln, 1895; Jacobi, 1896.

The list sounds rather more imposing than it really is, for Duval's work is in French, Fitch and Snell are rare and old books, Harris deals chiefly with biography, Jacobi's is a German work, and Lemmaln's is but a short compilation (as far as history is concerned) from Dexter.

This leaves Dexter's "History of Dental and Oral Science," which was published under the auspices of the American Academy of Dental Science twenty-two years ago, and is out of print, and Cegrand's "Rise, Fall, and Revival of Dental Prosthesis." The latter work was the outcome of several lectures delivered before the classes of a dental college in Chicago in 1892, and a second edition was published in 1893. It is a volume of three hundred and sixteen pages, and contains a great deal of curious and valuable information, and reflects credit on the author, who very modestly says in a letter, "I make no claim at having done a great work, but I do know that I have gathered numerous references, etc., and so arranged the book that he who wishes to go deeper into the subject will have had the many sources announced to him by foot-notes."

I wonder how many of the younger dentists of the country have read Cegrand's or Dexter's history, or in fact any history of dentistry, or are aware of what a gloriously independent history dentistry has had, and to what remarkable men we owe the making of the profession in this country.

It would seem that a more thorough realization and just pride in our past history might perhaps have a good influence on the professional tone of our future history.

What we need is an authoritative work on the subject that will carry it up to the present time, the close of the century.

As the editor of the *Dental Cosmos* says, "The history of dentistry has not yet been written, but it ought to be. The time is propitious, and the longer it is delayed the more difficult it will be to secure a reliable result. No single author could probably accomplish the task; but if a properly organized and concerted effort were made, the result could no doubt be attained. Let us hope that a creditable history of dentistry, not only of America, but of the whole world, may soon be forthcoming."

We have the men who can write that history right in the ranks of the dental profession, notably Dr. William H. Trueman, of Philadelphia, for example. Many of the men have helped materially to make that history. But the work must be done, or at least begun, before the close of this century, because, unfortunately,

these older men are not growing younger. This fact was brought painfully to mind by the death, some months ago, of Dr. R. Finley Hunt, of Washington, a member of the Committee on History, and a venerable gentleman who had taken the greatest interest in the subject and was the originator of the present movement.

The great question is, How many men out of the twenty-five thousand individuals who are earning their living by dentistry will take any practical interest in this matter?

I once heard an authority upon the subject talk about the "ninety per cent. of dentists who are not endeavoring to elevate the profession." Can we count upon the two thousand five hundred men who are engaged in this elevating act? If we could feel sure that half that number, or even one thousand members of the profession, would take enough practical interest to signify a willingness, at the proper time, to subscribe for such a volume, the rest of the work would be comparatively easy.

It is a sad, sad fact that nearly everything connected with dentistry costs money, and it is sometimes said at dental meetings that if our patients want fine dentistry they will have to pay well for it. The same rule we can now apply to ourselves. We should have a work that should be thoroughly satisfactory from a professional, theoretical, and practical stand-point. To what extent will the dentists of New England go down into their pockets, at the proper time, to pay their share towards making it a success?

The following resolution was offered by Dr. C. W. Strang, and passed:

Resolved, That the Northeastern Dental Association, fully realizing the necessity for a complete and authoritative history of the dental profession, and believing that the present time is most auspicious, desires to express its hearty appreciation of the efforts now being made by the National Dental Association looking towards the preparation of this much-needed work.

Dr. C. W. Strang then read his paper on "Amalgam and Oxy-phosphates as Filling-Material."

(For Dr. Strang's paper, see page 24.)

Dr. Hubbard, of the New York Dental School, read a paper on "Artificial Dentures in their Relation to the Speaking or the Singing Voice."

(For Dr. Hubbard's paper, see Vol. XIX., page 774.)

DISCUSSION.

Dr. Flanagan (Springfield, Mass.).—I think the time is coming when dentists are going to be called upon to assist vocal teachers.

Orators cannot gain the education here which they can across the water. The reason is that there they understand tone-formation. The paper of Dr. Hubbard has more in it than would appear on first observation. He has spoken of the tone-formation. We have all been to an ordinary play and heard a man sing. We may have a pleasing memory to carry away with us and we may not, and the whole will depend upon the tone-formation,—in other words, upon that small opening from which the tone comes. The teachers of vocal music will always impress upon their students the necessity of a clear formation in the mouth. Dr. Hubbard made use of a throaty formation, and he might refer to the man with the nasal twang. These different formations are caused by passing the sound through a place not proper for it. Again the man with the high tenor voice might be referred to. That man has gained a knowledge of how to place his tone. His tones vibrate. I certainly think it would be a benefit to have Dr. Hubbard's paper printed, because he has taken a step beyond all others.

Dr. D. D. Smith, of Philadelphia, read a paper on "Prophylaxis in Dentistry."

(For Dr. Smith's paper, see page 16.)

Dr. Smith prefaced his paper by remarking that the paper to which you have just listened forms a very excellent introduction to what I shall present to you. I will take the liberty of asking a question in regard to Dr. Hubbard's paper, which I hope will be answered some time before the close of the session. This subject, I understand, in its application to dentistry is not very well understood, but there are certain things which are understood. One is that a proper medium ought to be selected and employed by dentists when they are asked to assist in anything which might relate to the formation of sound. I would like to know what materials might be used. Dr. Hubbard spoke of vulcanite being a very poor material, and of the good properties of steel, but he said there is a happy medium to be found which will produce the best results. I do not understand how this is to be obtained, and it would be a source of gratification and information if we could have this distinctly brought up. It may be very well to theorize. I thought, as I came here to-day, that we seldom see at a meeting like this so many old men, men whose hair is as white as mine. Now, although we are of that class, we can be instructed, and I would very much like to be informed in regard to the dental application of that paper to which I have alluded. The subject which I have brought to you will perhaps not interest you, because

it is not novel. It is on preservation or the warding off of decay.

The paper was then open for discussion.

Dr. C. Frank Bliven (Worcester, Mass.).—This paper has interested me most deeply. I followed the doctor very closely, and I endorse most heartily all that he says in regard to cleanliness. I think that cleanliness comes next to godliness, and that if a man is godly he will be clean. So it is with the mouths of those people who have reached a state of understanding. I rejoice most heartily with the doctor that he has found a panacea that will prevent decay in all teeth. I wish I had found, in my efforts to keep the teeth clean, a perfect prophylactic. Those who know and have seen the mouths under my care will say the mouths are clean. But I do not think the doctor has struck the key-note to this thing. There are certain teeth that it seems to me do not need cleaning,—that is, I cannot find any accumulation. Those teeth break down very rapidly. There is a cause for this, and it is our duty to see if we can discover it. In the past dentists have dealt with effects, and not with causes. When the patients come to us we seek the cavities and fill them with artificial substances. Do they accomplish the result desired? Those people who conscientiously use the new methods, do they accomplish the desired result? I leave the answer with you, who advocate these methods. We have to look still deeper for the cause and for the cure. Some dentists tell their patients that they eat food which is too hard, and which breaks the teeth or the fillings. Others will tell their patients to use hard food, that inorganic material will preserve the teeth. From my point of view, the protection must come from within the tooth, within the man.

It is essential that we have within the system just the properties that will continue to rebuild the bone. Now, I think I am safe in saying that the bone is rebuilt, because, throughout nature, waste from use is continually going on, and there must be a supply in order to rebuild, regenerate, support, and sustain. Hence it is necessary that we should have food that will do this for us. I am not advertising any particular form of food. It has been said that because I advocate the use of shredded wheat biscuits I have some financial interest in the company. There is not one atom of truth in that statement.

It seems to me that the basis of this thing must first rest upon a contented mind, because, so long as the mind is agitated, the functions of the system cannot go on properly, and the organs

cannot perform their natural work of rebuilding as fast as they are wasted in use. We know that exercise and the use of every organ in our bodies is necessary. If you tie your arm to your side, in two or three weeks you would find it impossible to raise it to your face. To my mind, along with exercise and cleanliness should come contentment.

Dr. D. D. Smith (Philadelphia).—A matter which I overlooked is recalled to my mind by the last gentleman. He said that these accumulations were not on some teeth. On some teeth these accumulations are imperceptible oftentimes, but they are positively there, and you have only to try this process of thoroughly polishing the teeth to see what a change it makes in the teeth where the eye fails to detect the accumulations. But do not let all things degenerate to brushing the teeth. I am talking about stimulating the teeth by irritating the surface. Do not let it degenerate by saying that I have instructed my patients to brush their teeth. In regard to feeding that the pulp may do its work and protect the teeth, feed the teeth if you can, but I cannot uphold this plan. I can say, stimulate the pulp by irritation on the surface, and it will build up the teeth. I said to you what I believe to be true,—what I believe every one of the older members believe,—that feeding for the purpose of producing good teeth is a delusion and a snare. Not that the individual should not have good food. Give him good beef, good bread. Certainly he must have good food and everything the system demands and the system will take up, without any special material, for the teeth as for the muscles. There is no necessity, and it seems folly to me to feed the system with the view of making it produce good teeth. It simply cannot be done.

Dr. S. S. Stowell (Pittsfield, Mass.).—While Dr. Smith may be right theoretically, practically his plan is impossible. It would require twenty times the number of dentists there are to keep the people's mouths as clean as the doctor suggested. I do believe that the teeth are helped by having proper food, and I have written several articles on local exercise and put it in practice. I know it to be of use. In regard to the child which the doctor mentions, how does he know she would not have had sound teeth if they had not been treated in the way which they were? Cleanliness is important, but it is not everything, and will not remove the difficulty,—the tendency to decay.

Dr. Blien.—We find that the cat and dog get along very nicely without having their teeth cleaned, for the reason that in-

stinct leads them to select naturally organized food to rebuild their systems. Let me tell you of a case which I have under my charge. It is the case of a man whose teeth I have taken care of for some time. He has paid me from twenty-five to thirty dollars a year to keep his teeth in repair. They were well cleaned by himself. He is a farmer's son, and lived upon good food,—beef, potatoes, and nutritious things. But, nevertheless, this young man's teeth broke down rapidly. He left the farm to go West. Before he left he came to see me. I did everything I could for him, as he said he did not know when he would see a dentist again, and wanted to be protected.

Meeting adjourned.

(To be continued.)

Editorial.

INDIFFERENCE TO PROFESSIONAL DUTY.

LOYALTY to a calling, whether it be a trade or a profession, should be a part of the mentality of every individual, for without it both trade and professions are weakened. This is a truism, and needs no amplification.

How can professional duty or professional loyalty be defined? Not, certainly, by the ordinary commercial interpretation, for it assumes a higher phase in proportion to the exaltation of the calling. In all cases, however, whether this be high or low, it means that the individual having received a share of all the increment of knowledge previously acquired from those with whom he has been associated, should persistently defend that knowledge against all antagonizing forces, that it may be handed down to his successors in all its purity and without loss. This does not mean that he will selfishly grasp all the good there may be in it for his own advancement, but that that good may be so enlarged that those not alone of the household of faith may be benefited thereby, but, by reflection, the entire human family.

Indifference to professional duty is the weakness of dentists, and in proportion as their ethics fail to reach a high standard of rigid loyalty will it, to that extent, be ignoble.

It is well at the close of the year to take an account of the moral stock upon our professional shelves, and it is equally well at the opening of another twelve months to lay plans for future guidance. It is not always that these can be fulfilled, but the individual who fails to plan upon some system will never pursue a straight course, and can never reach any possible goal in life.

Has there been any gain upon the ethical side of our profession during the year just closed? It would be harsh to say there has not been any visible signs of a great moral upheaval; but it may be said, in truth, that if any change has taken place it has been towards a loss.

If loyalty to a calling makes that more worthy of respect, then it would seem that every individual enlisted under the dental banner would strive to make it worthy of the highest honor. Is this the case at present? It is feared the answer must be in the negative.

The writer was impressed with this fact in conversation recently with one of the bright young dentists of the period, and one who, should he live, will make a mark in his profession, that even he had not realized that there was something beyond scientific work due his calling, or that his indebtedness lay in the direction of a higher standard of professional ethics.

It was with him, as with the mass of the twenty thousand dentists of the United States, "Where shall I gain the most? If I write an article, where can I find a periodical having the largest circulation? Will this be found in 'The Universal Central Digester,' or in 'Capital and Interest?' If in one or both, then that is the place for my work to go." The question is rarely asked, "Where will I find the most intelligent circle of readers?" It is quantity always, and while quantity may give a semblance of truth to the idea that circulation insures a certain number of readers, it in reality means that so many journals decorate the office table, nothing more. The thinkers—and to be a thinker means a reader—are confined to a very narrow circle, and it is these that give character to any profession and make or unmake a young man in his struggle upward. The true goal for ambition is to seek this inner circle, and not that larger field of indifference that regards an advertisement as the most interesting portion of a journal.

From a lack of appreciation of the highest type of professional culture to that of indifference to duties connected with associative effort is but a step, the one being correlated with the other. It is assumed, and "Polk's Dental Register" enforces the assumption,

that over twenty thousand dentists are operating to-day in the United States. According to this very reliable authority, there are in the United States and Canada one hundred and forty-six dental societies of all grades. Giving thirty members as an average to each, there must be four thousand three hundred and eighty active participants in society work, leaving fifteen thousand six hundred and twenty dentists who take no part whatever in elevating their calling. The number who are enrolled as members of societies by no means indicates the real working force. It is within the knowledge of every dental society man that not twenty per cent. attend the meetings, and probably not more than ten per cent. either write papers or speak in the discussions. It would be extremely difficult to determine how many of all the four thousand three hundred and eighty ever attempt original work.

All this is not stated in a pessimistic spirit, for it is recognized, as a necessary result, that all persons are not constituted alike; different tastes and different habits, combined with different degrees of intelligence, go to make up this chapter of indifference or interest in society work. While this is true, some effort should be made to instil a broader professional spirit; and as the profession has tried moral suasion without result, why may it not be well to adopt another plan, and make a constitutional provision requiring attention to society duties? With this exhibit it is not remarkable that but a small proportion of the twenty thousand are subscribers to the dental journals.

With those of real intelligence in the dental profession—those who control societies and have, in season and out of season, labored that dentistry might advance to a position worthy of its duty to humanity—there is to be found a class that seem unable to distinguish between the ethical side of society work and that of commercialism. This class will sell their proceedings to the highest bidder, and give the cold shoulder to the professional journal, simply because the latter, struggling for a higher moral standard, fails to have the millionaire's capital behind it. It is to the disgrace of dentistry that this exists. It has been barter and sale from the National Association down through the subordinate organizations, with the exception of the few associations that refuse to be tempted by "the thirty pieces of silver" to betray their profession. It is through the unselfish efforts of this small body that the dental profession has continued to live, and it is to be hoped that their labors will eventually neutralize and render ineffective the poison that is at present sapping its vitality.

We have a still higher work before us, and that is the establishment of an organization representing the best thought, the best work, and the highest grade of men in our calling. When this is accomplished, then will be raised a standard for all men to follow, and the present indifference will vanish under the power of a great moral force. This will come, it must come, and not until then will dentistry be worthy the name of a profession and be an honor to our civilization and an increased blessing to humanity.

SUSPENSION OF DENTAL JOURNALS.

It is not a matter of surprise to be obliged to record the discontinuance of a journal, for these periodicals rise and fall with a regularity quite equalling the appearance of new candidates for professional favor; but in the past few weeks dentistry has lost two notable journals, the departure of which from our exchanges is a cause of regret. The two are the *American Dental Weekly*, published at Atlanta, Ga., and the *Dental Practitioner*, of Buffalo, N. Y.

It was a brave effort of Dr. Catching and his co-workers to establish a weekly journal, and it deserved a better fate. While it lasted it was ably edited and did an excellent work. The time has not arrived, however, when a weekly dental journal can be sustained. The amount of labor devoted to a monthly periodical is quite as much as the average professional man can bear, and until the compensation will warrant an entire giving up of other duties such a journal cannot be continued. It is a question whether, even then, weekly journals will be required.

The *Dental Practitioner and Advertiser* was issued but four times a year. This is the other extreme; but, notwithstanding this, the numbers were always eagerly read by a large circle, and its editorials exerted a greater influence than, possibly, any other journal. The editor, Dr. Barrett, wielded a virile pen, not always according to our ideas, but with a force that commanded attention. It is with an expression of more than the usual regret that he has been obliged to leave the editorial chair; but the hope is indulged that in some way his valuable and always energetic thought may find an avenue of expression. His contemporaries will, we are sure, agree with the opinion that this should be in the same line of work; for it is here that he is peculiarly fitted by experience and ability to lead his profession to more correct thinking and practice.

INTERNATIONAL DENTAL CONGRESS, PARIS, 1900.

THE preliminary report in regard to this important convention has been received. The Congress will take place in Paris during the Exposition.

To prepare for this a convention was held in Paris on the 26th of June, consisting of representatives from the Dental College of Paris, Society of Dentistry of Paris, and from the General Association of France.

A provisional committee was appointed to make arrangements for a permanent organization. Those interested in the Congress and desiring further information should address Dr. E. Pauvez, 17 Rue de Saint-Petersburg, Paris, France.

Bibliography.

ANATOMY AND HISTOLOGY OF THE MOUTH AND TEETH. By I. Norman Broomell, D.D.S., Professor of Dental Anatomy, Dental Histology, and Prosthetic Technics in the Pennsylvania College of Dental Surgery, Philadelphia. With two hundred and eighty-four illustrations. P. Blakiston, Son & Co., Philadelphia, 1898.

When an author gives to the world original work he should receive a warm welcome. The dental profession has had book upon book thrust upon it with no pretence of presenting more than a compilation of the work of others, so that a feeling of dread comes over the reviewer when forced to give an honest opinion of the merit of any production.

It is, therefore, refreshing to take up this work of Dr. Broomell, to find that he has not been satisfied with the work of other men, but has gone to the only source of information, wherever the teeth are concerned, the tissues as they are developed. In this way he disarms criticism, for whoever calls in question his conclusions must adopt the same methods and secure proof from the same source.

So accustomed has the average observer become to forms of teeth shaped by the tool of the engraver that it will be difficult for some to accept these presented from photographs and in half-tone

pictures, as really representing typical forms, but that they do represent teeth as they are and not as usually carefully drawn cannot be disputed. The only objection that can be made is in the selection of typical forms. This is always difficult, but it is thought that a better central incisor might have been secured than the one represented on page 133 with its abnormal crown and stumpy root.

The author has devoted the first part of this book, comprising eighty-eight pages, to what he terms "a gross description of the mouth and those tissues which enter into its construction." It is thought that the work would have been more satisfactory had this been omitted. The tendency of some writers to insert matter that should properly be kept within special lines cannot be commended. The subjects treated within the pages mentioned would appear better in works of anatomy, and it is from these most students would prefer to gain their knowledge.

The attention of the author is called to the illustration on page 78, in which the period of full development of the deciduous teeth is termed "youth." This is a broad term, too broad to be used to classify a period which strictly should be named childhood.

The real work of the author begins on page 89, Chapter IV., under the title of "A General Description of the Teeth." This is thorough and well arranged for study. In this general description the author states "that the superior first bicuspid may have one or two roots, most frequently the latter, while in the second bicuspid a single root is generally present." No allusion is here made to the very frequent presentation of three roots on the first. On page 171 there is a slight mention of this fact, but that it is not infrequent, should, it would seem, be mentioned. No doubt the author regarded this as an abnormality; if so, then a separate chapter might, with profit, have been devoted to these peculiar forms, which in many cases seem to present a tendency to reversion to original types.

In Chapter VIII. the reader is presented with the beginning of Dr. Broomell's most satisfactory work. The picture placed at the head of the page must attract the student and tells its own story, and at the same time it demonstrates the painstaking care of the author. The reviewer is not aware of any work to be compared with this, illustrating, as it does, by photograph the beginning of calcification in a central incisor. This is shown first in the cutting edge, and then by regular steps up through half crown, whole crown, to the final completion of the root. The text fully explains

this in detail, covering all surfaces in the description. This method is followed throughout the entire series. First pictures of calcification, then the teeth in detail, with differences in various temperaments.

It is a question whether photography is equal to the presentation of the occlusal surfaces of molars. The depressions and fissures do not come out well, and seem to present deep cavities that destroy the harmonious lines natural to the surface. This is particularly noticeable on page 187, in the illustration of the occlusal surface of the superior second molar, and is in degree true of all the representations of this surface of the molar teeth. The old methods of careful drawing will give results more satisfactory with this surface.

The author does not carry out the calcification idea with the inferior teeth. This would, of course, have been an unnecessary labor, as the development here begins and ends at practically the same periods. The same care is observed, as to details, with these as with the superior set. One hundred and one pages are devoted to this portion of the work, involving an amount of careful labor rarely met with in books of this character.

From the consideration of these forms the reader is taken to the "Pulp-Cavities of the Teeth." These are treated in a similar manner. First the central incisor from the sixth to the tenth year, with the various changes from the formation of the pulp-chamber to the completion of the pulp-canal in the perfected root. This method is carried through all the teeth, very vividly reproducing the pulp-canals as they really are, all of them being made from dissections of natural teeth.

The deciduous teeth are then fully described from photographic pictures.

The chapter on "Development of the Teeth" begins a portion of the work to which the author has devoted a great amount of original research. His work upon the earlier stages of development is not as full as some would like to have it, but the author preferred "to treat the general subject from a macroscopic rather than a microscopic stand-point." The dissections made furnish a complete description of the visible development of tooth follicles. The reviewer is not familiar with any book that can pretend to show better work or give anything approaching the satisfactory character of these illustrations, and yet they do not give full credit to the original photographs, which the reviewer had the privilege of examining. While the illustrations naturally arrest the reader's

attention, it would be an injustice to the author to omit an expression of satisfaction with the text. It follows the facts, as gained by dissection, with a clearness of description and faithfulness to results worthy of special commendation.

The balance of the book, from page 325 to 419, is devoted to histology, general and special, including the tissues of the teeth, in which Williams and Gysi are drawn upon for illustrations to considerable extent in connection with the original work of the author.

When a second edition is being prepared some things might be omitted with advantage, confining the work mainly to the author's own investigations, and, as before stated, a chapter on abnormalities, many-rooted teeth, supernumeraries, and twin teeth might with great profit to the student be added. In pulp-canals illustrations might be introduced showing variations from the normal opening at the apical foramen.

With Dr. Black's anatomy and this of Dr. Broomell the dental profession possesses two books that practically exhaust the subjects treated, and leave little to be desired as text-books in dental colleges or for the instruction of those more advanced.

The general make-up of this book is in every way worthy the house of P. Blakiston, Son & Co., being exceptionally good throughout.

LEHRBUCH DER CONSERVIRENDEN ZAHNHEILKUNDE. Von W. D. Miller, a. o., Professor an der Universität, Berlin. Mit 449 Abbildungen. Zweite umgearbeitete und erweiterte Auflage. Verlag von Georg Thieme. Leipzig, 1898.

This, the second edition in two years of this work of Professor Miller, indicates, more than words, the high appreciation in which it is held in Germany.

The author, in his introduction, has the idea, and it is doubtless true of continental Europe, that not one-fourth of practising dentists there care for the conservation of teeth, but prefer the preparation of artificial dentures. His aim has been to infuse into practitioners a stronger desire to save teeth by filling, and hence the large portion of this work is given up to this branch and collateral subjects.

The author wastes very little time in preliminaries, giving but fourteen pages to subjects by way of introduction to the second chapter on "The Filling of the Teeth." This very properly begins with the "Materials for Filling," and is thoroughly done, covering forty-four pages.

The author gives considerable space to the description of instruments, coffer-dam, etc.

From this point on is carried, step by step, through the process of preparing cavities, the handling of instruments, filling, etc.

The author's idea of the "Treatment of Hypersensitivity of Dentine" is fully described. His faith seems to be centred upon carbolic acid and cocaine, and gives the following formula :

R Acidi carbolici, 1.0;
 Olei caryophylli, 1.0;
 Cocaine hydrochlorate, 0.5.

Cataphoresis receives fair treatment, but the author does not seem to be favorably impressed with its value, preferring to give the experience of others.

The methods adopted in filling teeth are in nowise different from those understood and practised elsewhere, but all the processes are clearly stated and profusely illustrated.

"The Treatment of Diseased Pulp" follows in natural sequence. In regard to iodoform the author says, "Of all the remedies which have become practical in pulpitis I regard iodoform as the best."

For a paste to apply to a pulp the author makes use of the following:

R Acidi arseniosi,
 Thymol,
 Olei caryophylli, q. s.
 ut ft. pasta.

In pyorrhœa alveolaris the author quotes all the great variety of names that have been attached to this disease, and very aptly suggests that it would be well to wait until we know the disease better before giving it a name.

In the subchapter on "The Bleaching of Teeth" the author gives, on page 422, the method of bleaching by chlorinated lime and acetic acid, but gives no credit to the originator of this process, which was by the writer of this review. No allusion would be made to this were it not the habit of nearly all dental writers to ignore the fact. It is presumed that Professor Miller, owing to long-continued illness, had very little to do with the final preparation of the book, hence the omission. For information the writer would state that the entire process of bleaching teeth, the preparation of the canal for the agent used, now universally adopted, instruments and method, originated as stated. The long, tedious experimentation

that this entailed makes it worthy of some recognition. Bleaching teeth was regarded for twenty years or more by the majority of dentists as a fancy operation, and of no special value. When some more intelligent than the majority examined into the process and applied it, they received the credit, and the originator's part in it has been practically lost through one writer copying from another. There should be no difficulty in regard to this, as the whole matter was fully explained in the "American System of Dentistry." While it is true that the more modern methods have largely superseded this and have relegated the chlorine process to the background, it still retains a value for peculiar cases.

This book, as a whole, must be regarded as one of the best of its kind. The arrangement as a work on operative dentistry is very satisfactory. If there is any fault, it lies in too brief handling of the subjects, yet the book is quite large enough for convenient study, being 462 pages.

Unless this book should, some time in the future, be translated, it can have no value for English readers. Were this done, it would be a valuable addition to our text-books, but with several good books on this subject it is questionable whether it would find a demand sufficient to meet the outlay financially required for its preparation.



Foreign Correspondence.

LETTER FROM DR. N. S. JENKINS, DRESDEN.

DRESDEN, November 30, 1898.

TO THE EDITOR:

SIR.—In the October number of the *Dental Practitioner and Advertiser*, edited by Dr. Barrett, of Buffalo, appears the extraordinary announcement that "Dr. Norman W. Kingsley, formerly of New York, has located in Dresden, Germany, as the assistant of Dr. Jenkins. He has charge of the laboratory and prosthetic work."

The only possible basis of such a ridiculous statement is that, when upon a friendly visit at my country house, a few years ago, Dr. Kingsley, during the illness of one of my partners, although at that time far from well himself, kindly came into town and gave

me, in some special cases, the inestimable advantage of his great skill and wide experience.

As the publication of the *Dental Practitioner and Advertiser* has been suspended with the October number, I shall be most grateful if you will kindly publish this statement in your esteemed journal, to correct a rumor which is as unjust to my distinguished friend as it is grotesquely flattering to me.

I am, sir,

Yours very faithfully,

[Signed]

N. S. JENKINS.

[The above communication is given insertion in justice to the parties interested. It is proper to say, also, in justice to the editor of the *Dental Practitioner and Advertiser*, Dr. Barrett, that the writer had repeatedly heard the matter stated as a fact long before it was published in that journal.—ED.]

Domestic Correspondence.

NATIONAL OR INTERNATIONAL?

TO THE EDITOR:

SIR,—Since the session of the New York Stomatological Society in May it has been in the air that there would be a move to perfect an organization that would best represent the interests of the dental profession. At this gathering Dr. Davenport gave the central thought of the meeting, that the time had come for our profession to show what it could do for itself without the help of the trades, which, while they had been of much assistance in the hours of our need, it now seemed that we had come to an age in which we could show our independence.

We have a national body just organized, yet there seems to be evidenced by a preliminary meeting in Albany in May, and now, in the programme of the coming thirty-first anniversary of the Odontological Society of New York, there is put forth another indication that there is a decided purpose to form a national body on an advanced plan over any that has been attempted before. If this be so, then we can hope that there is a prospect of unity that

has not been of late hopeful. Should a body be formed that will secure such unity it will be a matter for congratulation to the whole profession. We emphasize the *whole* profession. This may not be in the thoughts of the promoters of this movement. If all are to be benefited, then all must be represented nationally and internationally. The Odontological Society set on foot something in this direction: they brought associate interest throughout the entire civilized world, and this Society was (as can be shown by its first list of membership) a representation from among all the representative practitioners of the world. This gave a dignity that no dental society had before or since possessed. A body to represent the ability of our profession should put out an incentive for general interest and participation, so that our whole calling would have a pride in making it a body standing for the best of all which will represent us. This is what must form material for a truly professional organization that will speak for our entire profession.

What can be more certain that if this be done there will come to be a spirit of unity such as never before existed? Have we not seen too much of sectional spirit, so much so that divisions have not been promotive of the best results, to say the least? Is it not possible that out of all this petty division there may arise a structure that shall show by its fruits that there is at heart a truly ethical profession, one that shall speak to other respected professions and claim a position before the public that we could never before defend? Nothing can more certainly extradite us from the "trade spirit." All of our tendencies are on the trade lines. If we take a stand against this, professionally, we can prove that while we are dependent on the "trade" for supplies, we are not called to bury our professional honor under the *commercial idea*. That the "trade" will go on stands true; let it, on its lines. We cannot escape the fact that our calling is at heart laid on those of science applied to humanitarian principles. Commerce cannot be considered as a prime principle; it pertains only as second. It is of no concern what individuals may do, we must stand or fall on the foundation principles. Our interests are one. May we not start on this roadway, and cannot it be best secured by having an international body, with an international organ which will give expression to the best, from the best, from all parts of the civilized world? Ever, though it may be by an associate membership,

G. ALDEN MILLS.

Notes and Comments.¹

SOME OF THE DANGERS IN FRUIT.—In writing upon this subject the *Family Doctor* says we have heard much of late about appendicitis, and a great many people who are fond of fruit, and who need it to keep in a healthy condition, discard its use through fear of being attacked by it. As a fact, the disease is not any more common than it used to be, and it is foolish for persons to deny themselves the pleasure of eating fruit through fear of microbes or appendicitis because, perhaps, one in a million persons happens to get a seed in the "appendix." There are, however, precautions which it would always be well to take; for example, all fruit with skins on should be washed and peeled before being eaten, especially fruit exposed in the street, and where dust and flies can have access to it. Few are aware of the danger of food contamination by flies. They are great scavengers, and are not at all discriminating as to what they eat nor where they settle. They pass at one bound from an infectious carcass, a foul ulcer, or a mass of filth to the apple, pear, or peach, and with dirty feet and proboscis run over it and contaminate it. Hence all fruit should be first washed and dried, and then peeled.

ARTISTIC DENTISTRY.—Under this head the *Dental Weekly* says many dental operations might be grouped, but there is one which is more æsthetical than useful, but which is appreciated by patients.

It is the shortening of elongated front teeth by grinding them to conform to a more natural expression. The points of cuspids frequently present the appearance of tusks, because of their length. The removal of the points with a stone adds much to the appearance of the mouth. Frequently a central or a lateral incisor, from some cause, will elongate and mar the symmetry of a dental arch. A little grinding will add much to looks. In some cases the point of the outer cusp of a bicuspid can be removed with good effect.

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

A METHOD OF WORKING CEMENT.—To insure a smooth, hard cement filling in proximal surfaces, particularly where the labial and lingual walls are to be restored, pass a thin piece of mica or celluloid matrix, it first having been slightly oiled, between the teeth, and, after introducing the cement into the cavity, press the mica or celluloid matrix firmly over the cavity and hold in this position for a few moments. The pressure makes a more solid filling. The oil prevents the cement sticking to the matrix, and the matrix gives the proper space between the teeth.—J. A. C., in *Dental Weekly*.

A SUBSTITUTE FOR RUBBER GLOVES.—We all know that in warm weather rubber gloves cannot be worn with comfort while engaged in prosthetic work; to subserve the same purpose the following suggestion for an ointment is taken from the *Medical Brief*: "In the warm days that are now before us, when a rubber glove cannot be worn with comfort while engaged in prosthetic work, an ointment of honey for the hands will subserve the same purpose. It holds the dirt in suspension and dissolves very quickly when immersed in water, leaving the hands soft and clean. Take clarified honey and rose water, of each one pint, listerine two ounces. Mix and bottle. For winter use, add two or three ounces of glycerin."

APPOINTMENTS OF DENTISTS FOR THE ARMY AND NAVY.—We take the following from our British friend, *The Dentist*, published in London: America is making a new departure. There has been introduced into the United States Congress a bill providing for the appointment of a brigade dentist for each brigade, with the title of major, and one for each regiment with the title of captain. The idea can be commended to our naval authorities. Why should our blue-jackets, if they require skilled dental attention, have to wait until they are on shore? Our soldiers are generally within reach of experienced dentists; but our jack-tars on board ship have to be contented with the services of the ship's doctor—who may not know much about teeth—or he must wait until he gets home again. Now that dentistry is beginning to have proper respect paid it, perhaps some one will take up this point.

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No. 2.

Original Communications.¹

PORCELAIN INLAYS AS MADE BY DR. JENKINS, OF DRESDEN.²

BY EDWIN T. DARBY, M.D., D.D.S., PHILADELPHIA.

MR. PRESIDENT AND MEMBERS OF THE ACADEMY,—I almost feel like apologizing for appearing before you without a paper, and yet you will understand that within the limited period given me by the council, when it asked me to prepare one, I could not do the subject justice, so I will ask your indulgence while I speak to you upon the subject of "Porcelain Inlays as made by Dr. Jenkins, of Dresden."

I think all of you have felt the need of something in the way of porcelain inlays. We have not had, up to the present time, what we have needed in that line. There are a great many cases that present themselves where we would be glad to have something better than gold in the anterior part of the mouth; that almost goes without saying. You and I have felt that we would be glad to have something better for labial surfaces, and for exposed proximal surfaces. Gold is unsightly, and just in proportion as people are

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Reported stenographically from an extempore lecture delivered before the Academy of Stomatology of Philadelphia.

refined in their tastes they dislike the appearance of this in the anterior part of the mouth. The day has passed for gold fillings to be called beautiful, and the highest degree of skill is shown in concealing rather than exposing our operations. The experience we have had with porcelain inlays has been unsatisfactory. The old method of taking a bit or fragment of a tooth (Ash & Sons or our American teeth) and fitting it to the cavity is a tedious operation, attended with the loss of a great deal of time, and has not given satisfactory results. Good operations can be done in that way, but it requires such painstaking efforts and such an enormous amount of time that we shrink from the operation. The system that Dr. Howe invented some years ago, of baking porcelain rods and making all cavities round, adapting these pieces to cavities, has also been unsatisfactory. In many cases a cavity can, without detriment to a tooth, be made round. Congenital defects, frequently found in the incisors, pits, and depressions, can be made round, the inlay adapted to the cavity, and made to look very nice, provided the shade can be matched. Mr. Doll, of England, did more in the way of porcelain inlays than any who preceded him. He introduced a similar system to Dr. Howe, and I might say a well-adapted system of porcelain inlays. He not only makes them round, but elliptical and crescent-shaped, but unfortunately the cavity has to be shaped, in a measure, to fit the inlay. You can, it is true, grind them to suit the cavity, but there is usually a greater loss of tooth-structure than we are willing to make in order to adapt these inlays.

The system that Dr. Jenkins has invented and practises is not altogether new; it was suggested to him by the glass inlays quite prevalent some years ago. I doubt not that many of you have tried the glass inlays and found them so defective that you abandoned them. I think the experience of most men who have had anything to do with these has been such as to make them regret ever having done anything with them. Dr. Jenkins's system partakes somewhat of that method. His facilities for obtaining a knowledge of glass and porcelain work have been very great. Living, as he does, in Dresden, surrounded by the potteries and glass-works of Saxony and Bohemia, he has learned from the potters and glass-workers a great many things that he might not have learned had he been in this country. You may be interested to know something of the man himself, because we all have our ideas of men, even if we have never seen them. Some of you may know Dr. Jenkins personally. A more charming man you have never

met; an American by birth, a gentleman of culture and refinement. He went to Germany more than thirty years ago and established himself in Dresden. He has made a great success as a practitioner; he numbers among his *clientèle* some of the most important personages of Germany, and he ranks among the best American dentists of Europe. As a companion, a comrade, no man is superior to him; he is one of the most genial, pleasant, lovable men it has ever been my privilege to meet.

And now for his work. Dr. Jenkins found that the glass inlays as used by Herbst and others in Germany, and as we have used them in America, were a great disappointment to him, and he sought to produce a porcelain, fusing at a comparatively low temperature, which would take the place of glass inlays. He went from pottery to pottery and factory to factory, and gained what information he could from those who were practical workers in porcelain and glass. He found he could make a porcelain that would fuse at a comparatively low temperature, or below the melting-point of pure gold. It was my privilege to spend a week or more with him a year ago last summer, and I saw him do a large number of these operations, and was charmed with the results he produced. I have seen in the mouths of my patients operations that he did two or three years ago; some I have seen since I returned, and they look beautiful, showing no change. Some have objected to his system because the inlay is held in place by zinc phosphate cement. It is true this would seem to be a serious objection, for we all know that these zinc phosphate cements are destructible in the secretions of the mouth; they do disintegrate and wear away; but, so far as my observation has gone, there has been no wasting around these inlays, even in cases of two or three years' standing. You must bear in mind that there is a very thin layer of cement exposed to the secretions of the mouth.

And now I will endeavor to describe, in as few words as possible, the method of making these inlays. It must not be supposed that without some practice perfect results can be obtained. If you undertake it, it would be well to make a few and insert them in extracted teeth before attempting to do them for the mouth. A little practice will enable you to get correct contours and perfect adaptations to the cavity. It is not the kind of work that careless, inartistic men should undertake, but in the hands of men who are the opposite of this, beautiful and satisfactory results may be obtained.

Let us take, for instance, an approximal cavity in an incisor, such as has been prepared in this plaster tooth. You will observe that this cavity has much the shape of the bowl of a spoon. From this cavity the mould can be easily removed. The shaping of the cavity can best be done with a spoon-shaped excavator and round burs. When all decay has been removed and the margins well defined, a piece of No. 30 rolled gold, rather larger than the approximal face of the tooth, is carried well beyond the cervical border of the cavity, and then a pellet of punk or bibulous paper is used for pressing it into the cavity. I have found that I can best keep the gold well up to the cervix by folding the upper edge upon itself and then slipping a piece of floss silk between the folds and wrapping the floss once or more around the neck of the tooth. When the gold has been made to conform to every portion of the cavity, the floss is cut near the tooth, and the loose end pulled away. If this is done with care, the matrix will not be displaced. The matrix is then gently removed from the cavity and placed in an investment of pulverized asbestos, which may be mixed with alcohol or water. You will observe this little platinum cup with a long handle and cap of platinum to cover the invested mould. The investment is made in this little cup because the porcelain is baked in this. After the investment has been slowly dried over the flame of a lamp or gas-burner, the porcelain powder of the desired shade is mixed with absolute alcohol into a thin paste and the mould partially filled. You will observe this little oven in which it is baked is lined with asbestos felt, and upon its under surface an opening for the gas flame from the blow-pipe. You will also observe the manner in which this blow-pipe is mounted upon these little tripods: these act as a stand for the blow-pipe, and save the necessity of holding the pipe in one hand during the process of fusing. The air is furnished by this ingenious little bellows, which is neat and compact. The baking process is not difficult, although considerable heat is required to fuse the porcelain. As there is some shrinkage in the baking of porcelain, it will be necessary to add porcelain powder two and often three or four times, depending somewhat upon the skill of the operator and the size and character of the inlay to be made.

My own experience has been that about three bakings are required for most pieces. There seems to be greater danger in getting too much rather than too little material in the finished inlay. If too full, and the porcelain overlaps the margins of the cavity, it

often means a new inlay, beginning at the first step in the procedure.

After the inlay has been fused it should be allowed to cool down slowly; then the gold-foil which formed the matrix should be peeled off, and the inlay tried in the cavity to see that it is an exact fit. If it be found correct, the next step is to cut with a small diamond disk slight grooves around the inlays, that the cement may have additional hold. When this has been done the cavity should next be made retentive in shape. If the cavity be an approximal one, a slight groove at the cervical border and a small pit near the cutting edge will suffice for an incisor; or if a bicuspid or molar, somewhat the same shape should be given the cavity that would be required if a filling of gold or alloy were to be used.

In the selection of a cement the operator should take one which harmonizes with the color of the tooth and inlay. If a darker cement is used the line of junction between the tooth and inlay will be more marked. My own experience has taught me that the Harvard cement is best suited to this kind of work; it seems to last better than any which I have used. In setting the inlay it is well to mix the cement moderately thin, and put a little in the cavity and a small quantity on the under surface of the inlay, and then with a piece of orange-wood, shaped like a wedge, force it between the adjoining tooth and the inlay. A piece of thin linen tape is often useful in drawing the inlay into place, or even a piece of floss silk wound around the tooth two or three times and tied will insure good adaptation. The cement should be allowed to harden for fifteen or twenty minutes before the saliva comes in contact with it. The greatest difficulty which I have encountered has been in restoring the corners of teeth and getting proper contours, and I fancy others who adopt this kind of work will meet with the same difficulty; and yet a little experience will enable us to overcome this. When one has succeeded in producing a good inlay the result is so satisfactory that he feels encouraged to persevere until the most difficult cases have been accomplished.

Dr. Deems, of Baltimore, is with us this evening, and as he has spent considerable time with Dr. Jenkins and has made many of these inlays, I hope he will tell you his experience with this style of work. I have seen some that he has made, and I feel sure that he will be able to tell you some things which I may have omitted, and possibly show you better than I can how these inlays are made. If the light is sufficient and the flow of gas from this

burner ample, I will endeavor to make an inlay at the close of this meeting.

Dr. McQuillen was with me in Dresden, and saw Dr. Jenkins make and insert these porcelain inlays, and as he is present tonight I doubt not he will be pleased to testify to the superior character of the operations he saw performed by Dr. Jenkins and his assistants.

THE RELATION OF SCIENCE TO PROGRESS IN DENTAL PRACTICE.¹

BY S. B. PALMER, M.D.S., SYRACUSE, N.Y.

THE first dental periodical in this or any other country was issued on the 1st of June, 1839, under the title of "The American Journal of Dental Science." From that time until the present science has been a prefix used, in connection with dental literature and in discussions, to denote the highest attainments in knowledge and skill. Progress in medicine and dentistry has been slow, but once it becomes established upon a scientific basis, it remains as unchangeable as literature recorded in a dead language.

One of the advantages that science offers to dental practice is the knowledge of laws and principles which may be taught students at the outset, as unerring guides in selecting materials and remedies to meet specific conditions. One law relating to dentistry is this: "Under the same conditions, with the same materials, the same causes produce the same effects." Most of the controversy and confusion that retards progress is caused by misplacing conditions which will always give different effects.

I will not attempt to teach you operative dentistry beyond its aid in demonstrating science, as gained in my own practice. So far as this conforms to your clinical experience it may be pronounced scientific. Medical science had been victorious on many a battle-field before dentistry claimed to be a profession. Evolution in the practice of dentistry has likewise provoked opposition.

In 1874 I read a paper before the Dental Society of the State of New York. From the discussion I quote the following from a

¹ Read before the Northeastern Dental Association, at Hartford, October 19, 1898.

member: "Dr. Palmer has given the society his views upon the subject. He has made statements, but they all seem to me to be *ipse dixit*." That was twenty-four years ago, and the quotation there voiced the sentiment of the profession. Evolution in practice has absorbed not only those statements, but many more radical, until of late we have expressed opposition condensed into tables of physical facts that are arrayed against the so-called "electrical theory," which in no respect relate to the conditions under discussion.

Twenty-one years ago it was my mission, or perhaps misfortune, to set forth a doctrine which came to be known as "the electro-chemical" theory of caries, or secondary decay around gold fillings in the mouths of young patients. Very naturally, the theory met with earnest opposition. Gold was king of filling-materials. It represented respectable and remunerative practice. The new doctrine, from a scientific stand-point, taught that for this class of operations gold had faults. Also, for specific conditions, that amalgam was better adapted for arresting decay than gold. That was sufficient. Science had no voice in discussion. The theory was charged with debasing gold, exalting amalgam, and degrading the profession. As years went on, dental progress on various lines of investigation was under the leading of authority, conducted by able minds, with means and opportunity to do much for the profession.

It seems very strange that during so long a period any theory bearing upon a subject so important as tooth-preservation should have been disposed of by the sweeping declaration that "the theory has no scientific foundation." In charity I make allowance for prejudices which have come down through the feelings engendered during the early discussion of the "New Departure." Dr. Flagg, whom you all know, has a way of pushing things peculiar to himself, which is not always agreeable to others. In his introduction of the basal principles of the "New Departure," he said, "I am the mouth-piece of Dr. Palmer," referring to the scientific correspondence previously obtained for that occasion. His part was tabulated experience. Whatever criticisms may have been made for the vigorous work he did on that line, I believe no other man can favorably compare with Dr. Flagg in connecting science with practice. Such was the opposition to my findings then, that, if I had been as timid as a quotation to follow would indicate, I could not have been induced to be present to-night. Dr. Flagg did not

profess to teach science, therefore the task has fallen upon me. And with this encouragement, opposition seems to have dwindled to tables of facts, which do not relate to the conditions.

I will in no way attempt to controvert the tables mentioned. As understood, the labor has been done in the laboratory, and the findings carefully noted. The conclusions are based, as I understand, upon experiments made to find all the properties and variations of tooth-structure under all conditions. Such investigations have been conducted with the most accurate instruments that could be made for the purpose. We are surprised at the findings that there is such a sameness. This does not in any degree cover the conditions or conflict with the findings upon vital organic matter. I worked three years in laboratory work to find that nothing could be gained from nature short of observation in the laboratory where the work was being done. The results will be given farther on. The line of division between opposition and our field of operation is between the laboratory and the chair; our observations are upon the conditions of development of teeth, and the durability of fillings in relation to various conditions. Comparatively speaking, we might as reasonably attempt to change public opinion regarding an individual's character for veracity by a post-mortem examination of the brain as to decide the proper filling-material for the various conditions of teeth by experiments in the laboratory.

As may be seen in the June issue of the *Dental Cosmos*, 1898, Dr. Black reviewed the papers containing a review of his conclusions previously published in the *Dental Cosmos*. These papers were read before The New York Institute of Stomatology, October 5, 1897, and appear in the *INTERNATIONAL DENTAL JOURNAL*, December, 1897. Dr. Black says, "The gentlemen writing the reviews are representative men, well known to the dental profession, and are persons whose views command great respect. They are Charles S. Tomes, of London; Dr. R. R. Andrews, of Boston, Mass.; Dr. S. B. Palmer, of Syracuse, N. Y.; Dr. James Truman, of Philadelphia, Pa.; Dr. George A. Maxfield, of Holyoke, Mass.; Dr. E. A. Bogue, of New York; and Dr. B. Holly Smith, of Baltimore, Md. While their papers are deliberate and very respectful in their tone, most of them present a strong inclination to cling to the older views, and yet a disposition to yield to the testimony adduced."

For fear of doing injustice in abbreviating the quotations pre-

sented from my paper, I give them entire, with the criticism, being confident that I could not present the distinction between Dr. Black's conclusions and my own any better: "Dr. Palmer's paper is a very curious piece of writing. He says, on page 791, 'These are facts recorded in the tables emanating from physical investigations, so carefully prepared and systematically arranged that they are under the seal of science and challenge refutation.' That was complimentary to his laboratory work. And upon the same page he also says, 'So far as the difference exists relating to the teeth which we represent, science from the physical plane is misapplied,' and says that 'the investigations which we are called upon to refute are of the earth, earthy.' And again, on page 790, 'We will now take our stand upon the animal plane where man lives and moves and has his being, which is quite above the plane upon which the conclusions under discussion were based.'

"From this it will be seen that while Dr. Palmer acknowledges the correctness of the findings as being upon what he calls the physical plane, he regards them of no consequence because he works upon the animal plane, which is higher. Still he objects to the conclusion that there is no basis for the selection and adaptation of filling-material to soft teeth, hard teeth, frail teeth, or poorly calcified teeth, for the reason that all are found to be sufficiently hard, and says, 'We know that teeth undergo changes from the time of their first calcareous deposits until the pulp, from natural limitation or from caries, or from accident, fails to perform its functions. We know that teeth at twelve years of age have not reached the limit of pulp nourishment.' An examination of the tables I have presented proves that there is a constant increase in the proportion of lime-salts from youth to old age, and Dr. Palmer ought not to represent, as he does in these sentences, that I have denied pulp-nourishment under any normal condition of the teeth, much less assert that it ceases after the age of twelve years. Proceeding directly from the last quotation Dr. Palmer says, 'We know that young teeth are softer than the same would be at maturity; also that some are free from caries, and others are badly decayed at twelve or fourteen years. We know that it is under a natural law that the latter decay when filled with gold without some insulating lining, for the following reasons: The fact that decay has attacked several teeth is an evidence that their structure is faulty. We know that dentine is a conductor when in this condition.' Dr. Palmer thus prepares the ground for the presenta-

tion of the electric theory of caries and of the selection and adaptation of filling-materials to soft teeth and to hard teeth, or to teeth not well calcified. The tables which I have presented seem not to have given enough variation in lime-salts to work his electric currents properly. He therefore escapes from the physical plane which is 'of the earth, earthy,' and rises to a higher plane, and proceeds without disturbance from the facts found to exist in the plane below. The doctor's papers are always interesting, even though we cannot all agree with his findings."

The above review of my paper shows conclusively that Dr. Black clearly understands that my conclusions are based upon experiences gained by clinically observing the effects of various filling-materials in the mouth, extending through years in the same mouth, as others have done. Facts have been thus gained which no laboratory facts can refute. And yet Dr. Black only voices all opponents for a score of years past in saying that there is no basis for the selection and adaptation of filling-materials, etc. I will add this quotation. "With our present knowledge the only basis for the selection and adaptation of filling-materials to classes of cases is the individual operator's judgment as to which he can so manipulate as to make the most perfect filling considering the circumstances, his own skill, and durability of materials." Can it be possible that this society of dentists can believe that there is no science in filling teeth? That with all the study and earnest work that has been done there are no rules, laws, or guides to offer a young graduate that would save him much chagrin and loss of patients, while waiting to obtain experimental knowledge? Can the profession believe that all must be trusted "to the individual operator's judgment?" Not only is science denied on these points, but tables are set forth to prove, as others have said, that there is no scientific foundation for theories which do not agree with misapplied facts.

I will briefly outline my belief in relation to the difference between oral electricity and electricity as understood in physics. I am well aware that this writing has no authority in our text-books, but most new discoveries have met with opposition until established in fact. By wearing plates—silver, gold, vulcanite, and aluminum—I discovered that taste of food, drinks, etc., was a sensation caused by electricity which was generated in the mouth by the bringing in contact of positive and negative elements of food, or liquids in connection with saliva.

That such currents are formed by mixing any compounds in which there is chemical change in the laboratory is well known to any one conversant with electricity. Thus the experiments I had carefully conducted both in and out of the mouth with food and saliva gave no new principles. The galvanometer was abandoned for that class of experiments. Still I believed that the electricity generated from organic elements was also organized electricity, and gave taste. The wearing of silver for two years gave some ideas, but they were not distinct. The change to a gold plate established my belief,—*i.e.*, I had the experience of a positive and a negative plate, each worn separately. Silver was positive, gold negative, which gave both poles of a battery, compared with food for the opposite pole. Silver being positive as compared with most kinds of food gave the best evidence that vital electricity was converted into physical electricity as soon as it passed through a metallic conductor or came in contact with metals. To illustrate this point I will compare it with a jet of blood flowing from an artery: it is a current of life; gather it in a vessel, and it is but a devitalized coagulated chemical compound. When a current of *vital* electricity is caused to flow through a metallic current, it is delivered as physical electricity. Without the wearing of a silver plate I should not have had any means of obtaining this knowledge. Let us attempt to make this plain by a lesson which can be appreciated by any one not wearing metal plates. First, food is both positive and negative, and saliva is an unstable fluid easily changed by contact with either positive or negative elements of food as previously mentioned. The chemical action thus set up, having no conducting poles or polarity, remains in the mass until by deglutition it passes into the stomach, its only manifestation in the mouth being taste. Many also know that a metal, when immersed in such a mass, either in the laboratory or in the mouth, would at once become charged with electricity. Should a single plate be inserted, there would be no established current. Still it would effect the compound, should the plate be either positive or negative in this respect. Let the plate be silver, there would be more electro-chemical action than if it were gold, because the silver would be positive to more kinds and conditions of food than would be the case with gold. Thus far, I trust, many of you fully understand. To continue, I will introduce an idea not found in dental text-books: That organic food generates vital or organic electricity; also that in preparation of food we indulge in adding car-

bon to that naturally belonging to it, as well for the energy it affords as stimulant, by increasing the current, as for delicacy of taste. Nature knows where to draw the line between organic and inorganic food. This knowledge greatly aided in the experiments in which I was engaged. Long before science was taken into account cooks toasted bread, broiled meats, and roasted coffee. This process adds carbon without disorganizing the food. The brown portions are organized carbon the same as that which is not browned. The increase of the electric current is manifested by delicacy of taste; the elements which are employed are the carbon negative, the usually cooked portions positive, with saliva for the fluid. Take for illustration one element, coffee. Imagine a cup of coffee made from the unbrowned berry, or, on the other extreme, from coffee burned in roasting; the latter would be mineral carbon. And the same principle runs through the whole series.

Carbon is not the only element suggested by nature to increase the current of vital electricity. Fruit acids, etc., chloride of sodium as seasoning of food, salting of almonds, are tolerated by nature. The galvanometer gave correct readings of all the above-named elements with saliva in the laboratory, but there was no connection with life and vitality until observations were taken from plates worn as described. Sulphur, an element little used in cooking except as an ingredient in eggs, was very important in establishing belief in vital electricity. It is known that silver is sulphuretted by sulphur; the silver plate was a galvanometer which recorded not only the increased current by taste, but electricity proper by the sensation of a mild shock, or rather a flash-like feeling unmistakable of physical electricity. Breathing while passing a sulphur spring, which was several rods from the road-side, was more distinct by taste than by smell. While silver as a whole was more or less annoying in giving metallic tastes, there were other conditions not in the least disagreeable. Nature drew the line as distinctly on that principle as she does on roasting coffee. At this point I will suggest an experiment with coffee, and not a disagreeable one at that. When enjoying a cup of black coffee without cream, sip it slowly from a spoon, and notice the thinning of the saliva and the taste immediately following; add cream, and it will be found a partial insulator.

For the same delicacy of taste sugar is burned in brandy; more carbon is added. For this purpose pewter beer-mugs were once so popular; the ale was truly electrified, being charged in the mug

and discharged in the mouth, as demonstrated in taste. Thus far nature admitted electricity. Should the voltage be increased, taste would be abnormal and the drink or food would be rejected.

This allows us to bring out a lesson in regard to electric currents in the body. All remember that dentistry gave to the State of New York electrocution. The late Dr. A. P. Southwick knew that electricity from a dynamo would kill quickly. Since then another discovery has been introduced, one of its virtues being to electrocute pulps in teeth by cataphoresis. It is also used in milder form to destroy sensibility in dentine for painless excavating. I am not discussing cataphoresis. It is well to remember that electricity kills the body, destroys pulp life, and it is a close diagnosis to determine how much nature will tolerate in semi-electrocuting sensibility. There are all degrees of currents imposed upon nature in the practice of dentistry, from that mentioned in devitalizing pulps down to drinking ale from pewter mugs. When a gold crown or band extends beneath the gums, a current is established and the metal in touch with the tissue becomes an electrode. When a gold plug is inserted, it, too, is an electrode. In case of normal dentine it is insulated from the pulp and electricity is discharged from the surface where it received potential. When the dentine is a conductor, the current is abnormal to the functions of the pulp. The conductivity of dentine is governed by the proportion of moisture it contains. The principle in regard to currents is laid down in books as follows: "Feeble currents of electricity, continued for a long time, are equivalent to a stronger current for a shorter period." A developing tooth is a living organ, the pulp being its life centre. When for any external cause thermal changes produce pulp-disturbance, that is an indication that nature's process of calcification is being disturbed. In cases where teeth are worn nearly to the gums by slow degrees, secondary dentine fills the pulp-chamber and the pulp occupies only the root-canal. Invasion by caries is accompanied by acid which reverses nature's current. There is no building up against caries; thus decay in time reaches the pulp. Here we have another condition which produces secondary decay,—that is, caries around metal filling. When a metal plug enters sensitive dentine, cold—air, food, drinks, etc.—sends a shock to the pulp. I say shock because animal electricity heat ranges between freezing and 105°; thus in food and drinks the limits are nearly reached. We can readily see what the effect might be by introducing abnormal conditions so near a pulp. This

one feature has been the hardest to understand on account of the difference between vital and physical electricity. Some might wish to know why a large gold plate would not cause more disturbance than a filling or gold crown. Because a plate rests upon gum tissue, which is a good conductor. The entire under surface being a conductor, there could be no concentration or discharge at any given point. Crowns that extend under the cervical border often effect the gums; so with fillings which extend into dentine sufficiently moist to be a conductor. Having thus far given most of our time to scientific teachings, I will illustrate science by practical application.

Remembering that Dr. J. T. Barker, who in a way is responsible for my presence this evening, more than a year ago showed much interest in clinics in my office, I will mention my practice in that line of work, which, as once remarked, is "filling made easy and more effectual." It relates to starting fillings of gold in shallow cavities located upon labial and buccal surfaces. I only venture to teach in this line because of much experience and the happy results from using crystal gold for a foundation, not claiming discovery of the principle. Many years ago I was equally interested, with Dr. Barker, in Dr. Howard's office in Buffalo, N. Y. If at the close of discussion some member should say, "I hope it will not go out that it is the sense of this meeting that it advocates the sticking in of gold fillings with varnish," it would not be the first time I have heard it. Call it what you will, the fillings stick. I have prepared a piece of ivory, which may be passed around, showing depth of cavities, with linings of varnish and of cement; also the crystal gold foundation, and again the first layer of gold-foil, and last a finished filling. There is no need of any one failing to do this work if the instructions are followed, and I have endeavored to explain so as to be understood; as above mentioned, success lies in the preparation of the gold foundation. Watt's crystal gold, No. 1, is the only preparation of gold that would enable me to do the work, which with it is easy. The drilling of pits or undercuts for starting fillings is unnecessary in this kind of cavity. In preparing the gold, cut from the cake, with a very *sharp, thin* blade, slices about seventeen plate gauge; the thickness of a small penny is near enough; when ready to use, cut the slice into pieces that will cover the cavity, anneal upon mica,—not over a flame, as the heat melts the fine crystals. Prepare the cavity according to decay. With good access and right-angle walls the thickness of

twenty or twenty-two gauge is sufficient. No matter if deeper or shallower in places, or convex at bottom. For shallow cavities use varnish. Dry with hot air,—and that is of more importance than is generally understood. It is known that dentine is relieved of sensitiveness when desiccated, and while in that condition this varnish takes the place of moisture. A thin lining is thus formed which prevents the return of moisture, and the return of sensation also. On that account varnish is better than cement.

In introducing the filling, varnish and remove excess with small pieces of rubber dam; held in dressing-pliers, it takes up varnish and leaves no lint behind. While the varnish is tacky cover the cavity with a piece of gold, press the centre with a finely serrated, oval-faced plugger, working from the centre to margins, then with a thin flat serrated plugger, draw the overlapping portions towards the centre, and press back against the cavity wall into the corner, so as not to cut the gold. Pass around the margin and remove the excess of gold. If the gold is found broken or uneven, add another layer, not so large as the first. Upon that foundation build up the filling, using foil in tape form, made of foil folded in flat layers. Cement also makes a good foundation. Its use is indicated in deeper cavities. When the cavity has been prepared as above mentioned for varnish, use cement in like manner; make it quite thin, and spread it over the dentine as if it were heavy varnish. Place the gold over the cavity, and pack from the centre, forcing the cement out at the borders. Remove the cement and portions of gold that have been touched with it. As soon as the cement has set, so as not to be forced out by pressure, clean the enamel from any portions lodged there, and proceed to finish as described with varnish. In the use of amalgam for large cavities, particularly in devitalized teeth, cement linings are very important. It fills the porous dentine, also prevents chemical action upon the amalgam, as it always occurs when in contact with soft dentine. I should remark that, in filling deep cavities with cement to displace a portion of the amalgam, it is best to do the body of the filling with cement mixed for filling, and, when ready to finish with gold or amalgam, add a thin mixture, as would be used in shallow cavities, as gold or amalgam does not adhere to cement once set. This should be done in adding metals to old cement fillings.

Let us now consider the combination of gold and tin. There seems to be a wide difference of opinion regarding the use of tin at cervical borders for guard fillings. I will quote from the In-

INTERNATIONAL DENTAL JOURNAL. In the October issue, 1898, may be found the discussion of Dr. Safford G. Perry's paper (page 567), "Treatment of Cervical Borders." One point of great importance was not settled to the enlightenment of readers. I will give my own conclusions and practice, which I believe will show that both the gentlemen were right from their stand-points. This subject has been made a study, and close observation has traced the causes to their respective conditions. There is no other metal used for filling teeth that is more compatible to dentine than tin. Tin and gold in the same cavity are in perfect harmony, nor is the tin dissolved. Tin- and gold-foil placed together in alternate layers make a durable filling resembling amalgam in color and hardness. Within a few years I saw several large fillings of this kind in molars which were done by the late Dr. Abbott, of Berlin. They had been done at the time over twenty years. This was noticeable: Upon the surfaces occasionally were visible specks of gold, also pits occasioned by the dissolving of tin. There was no decay around the plugs. These are facts which can be produced by observing the conditions. Again, I practised using tin at the cervical borders until I found beneath the gold at that point a black, soft mass. I do not remember seeing decay or sensitive dentine. I abandoned the use of tin for that purpose, and use amalgam when admissible. As Dr. Perry and Dr. Truman were earnest in the discussion, and Dr. Truman could not account for the difference, I trust they will kindly receive a suggestion. Quoting from Dr. Perry:

"Of course, you will understand that I am speaking of these three substances—gutta-percha, gold, and amalgam—only as foundations at the cervical border for oxyphosphate of zinc. I have not included tin, for while in some places I consider it the most perfect of all filling-materials, I do not trust it in sheltered places on proximate surfaces, and for the reason, of course, that it undergoes chemical dissolution. For this reason, many years ago, when it was advocated as well suited, pure or rolled with an alternate leaf of gold, for use along the cervical border, I distrusted it and used it but little. The few teeth that I ever filled in that way were afterwards repaired by replacing the softened tin by either gold or amalgam."

Dr. Truman remarked, "There were one or two points that arrested my attention during the reading of the paper that seemed to me to be of importance. When I heard Dr. Perry state that he could not use tin at the cervical border without it disintegrating, it

seemed strange to me how we all differ on many points that are of practical importance. I remember that Dr. Jenkins, of Dresden, once said that he could not fill a cervical border with gold, that he had given that up as a practical impossibility, but that he could use tin and gold with perfect satisfaction. And I am forced to agree with him, not only as to the use of tin and gold, but tin alone when put in upon the cohesive principle, as I think all tin should be used. Of course, I bow always to Dr. Perry's large experience in this matter, and hesitate even to oppose that much of his paper."

The above shows different opinions upon a practical point without much benefit to the reader. As I view the matter, it is this: We know that gold and tin work well together when tin forms a considerable portion of the filling. Dr. Truman was right when he said, "Tin alone when put in upon the *cohesive* principle." The unseen fact is this: Gold by induction imparts to tin in contact a preserving property; that is, there is an interchange of atoms which forms an alloy of gold and tin which is insoluble. This alloy is only about the thickness of one layer of tin-foil. That, however, is enough to form an inseparable union between the metals. When the gold is put into an acid which will dissolve tin, it will be found that the surface retains the alloy unless a stronger agent is used to dissolve the alloy. When the tin is used cohesively, it represents a body of tin, the alloy cares for the joint and the tin is like a portion of a solid tin filling. On the other hand, the tin in case of two or three leaves does not enter into combination and it is subjected to galvanic action produced by the gold, and softening is the result. I would not risk gold and tin rolled together into a rope, but would feel safe with gold and tin placed together in alternate leaves and cut with scissors, provided the gold was placed against the dentine. One thing is certain, an *excess* of non-cohesive tin will unbalance the alloy and allow disintegration. Thus it may be seen that small, unseen causes produce varied results. While this point of induction is in mind, we will apply it to amalgam. Amalgam when added to an old plug forms a perfect union by the mercury entering into the old material. It so happens that still another patch may be needed. An observer will remember that in after years seams appear and the fillings seem to be separating; in fact, do separate in some cases, the cause being that the joint contains more mercury than other portions of the plug. The first portion absorbs mercury, which changes its proportion at the joint, and that thin strata becomes

a positive element between the other elements more negative. To correct such effects, place a layer or two of gold-foil against the amalgam wall and introduce the filling. The gold disappears, but the influence remains, and the joint will be the last to give way, because the gold renders the joint negative. Lining cavities with tin under amalgam is good practice and next to cement. It presents an amalgam largely composed of tin, which, like tin, arrests caries and also blends the elements in the alloy which always exists in amalgam, that is, caused by the cuttings that are not fully amalgamated, with the other portions containing more mercury.

As this contribution will probably close my writing upon this special subject, it seems proper to remark that, in all the controversy that has been manifested for and against the points at issue, friendships have not been broken, and I accord to all who have opposed the principles advocated the same zeal and integrity in maintaining the dignity of the profession against what was believed to be debasing that I felt in promulgating what was believed to be science. On the other hand, I will ever remember the kind friends and agencies who have given aid and encouraged me through more than a score of years in which discussion has been going on. First, I will mention my friend Dr. Flagg, as the first cause, and the first to contribute a clinical foundation upon which to rest the "electro-chemical theory." His tabulated experiments, his clinical experience, his faithful and frequent correspondence, his teachings and liberal donations of the latest discovered materials, together with clinics in his laboratory as often as I could enjoy them, have been the main help in crystallizing theory into science. Second, the Dental Society of the State of New York, and the New York Odontological Society, from the first, have invited papers for discussion and have shown appreciation by high official appointments in my own State. Third, and to close, the Northeastern Dental Society has contributed the opportunity I now enjoy, of showing through its transactions to the dental world the relations of science to progress in dental practice. And science we define as a revelation from the Creator to man, as manifested in matter and recorded in natural laws, which are divine laws and from the same source as the laws revealed by inspiration, recorded in Holy Writ and accepted by faith. Therefore, by authority of natural laws and the testimony of clinical experience I maintain that the adaptation of filling-materials to the conditions of teeth stands upon a scientific basis,

ETHYL BROMIDE AS AN ANÆSTHETIC¹

BY E. B. DICKINSON, D.D.S., AMHERST, MASS.

I DESIRE that you will not confound ethyl bromide with ethyl chloride, ethyl, or any of the bromides used as local anæsthetics.

Nunnely, of Leeds, was probably the first to utilize the analgesic properties of ethyl bromide, and to advocate its use as an anæsthetic.

Turnbull, of Philadelphia, was much interested in it, and from 1878 to 1882 spent considerable time in investigating its action. At about this period many physicians and dentists used this means of abolishing pain, and from Philadelphia its use spread in various directions. Dr. Price speaks of it in the *St. Louis Medical and Surgical Journal*, vol. xlv. p. 297. The great difficulty then seems to have been to obtain a perfectly pure article, and this is scarcely yet overcome, on account of the impurities of the drug and methods of administration, regardless of its physiological properties.

The advantages to be derived by its use were by no means so great as they should have been, and perhaps this fact, conjointly with that of the difficulty of obtaining a supply promptly, would explain its limited use until recently, in spite of its indorsement by such authorities on anæsthesia as Turnbull in the United States, Richardson in England, and Dartee in France. Ethyl bromide is a colorless liquid, considerably heavier than water, boiling at 39° C., a temperature slightly over that of the body. The liquid is non-inflammable, has an ethereal odor, a sweetish taste, and possesses marked properties of local anæsthesia produced by contact, as well as the general properties of analgesia with consequent anæsthesia when inhaled. Ethyl bromide should have a perfectly neutral reaction with reference to litmus paper. It should be kept protected from the air and from acting rays, for although not so easily altered as chloroform, it is nevertheless subject to decomposition unless such precautions are taken.

No ethyl bromide should be used if there can be any doubt of its purity. Let me say right here, I have had samples tested bearing the marks of some of the prominent pharmaceutical chemists

¹ Read before the Northeastern Dental Association, at Hartford, October 19, 1898.

of this country, and have found impurities which condemn its use as an anæsthetic.

I can indorse a preparation put up by Dr. Goesmann, having used it myself and knowing that all his products are tested physiologically before leaving the laboratory. The impurities of ethyl bromide may come either from the process of manufacture or from decomposition.

Among those found are free bromine, acetone, and phosphorus, in combined form. Some of the samples that I have seen have been even yellow and some showed a deposited sediment in the bottom of the bottle. Absolute purity must be assured, then safety, and the best results are practically certain. As a caution, note carefully that no other organic bromide be furnished in place of ethyl bromide. Too many fatal errors have been committed by a substitution of similarly named substances, through the criminal ignorance or carelessness of the pharmacist.

Its physiological properties, quoting from Dartee, von Ziemacki, Malherbe: Applied to the skin or mucous membrane, ethyl bromide has a slight vesicating effect; the skin reddens to a perceptible degree, and is warmer to the touch than the surrounding parts not subjected to treatment. In a few minutes the phenomenon of local anæsthesia appears, probably induced, as far as the skin is concerned, by the rapid evaporation of the ethyl bromide and consequent congelation of tissue, in manner similar to that of ether when applied locally with a Richardson pulverizer. The internal administration of ethyl bromide is accomplished to best advantage by its inhalation, and in this manner it has been administered in all experiments for the study of its physiological action as hereafter described.

Ethyl bromide apparently effects a chemical union with the iron salt of the red corpuscle of the blood, to which we attribute the function of transporting oxygen. The ethyl bromide, when inhaled, seems to so unite with the blood as to prevent its taking up the oxygen, and to that extent becomes an agent of suffocation similar in action to that of carbon monoxide. If this fact be borne in mind, it will be readily understood why a short administration of the anæsthetic, even in considerable quantity, but interrupted by periods allowing of full respiration, would portend no danger to life, whereas a continued and protracted inhalation of this same substance might so saturate the blood as to reduce its oxygen function to a degree dangerous and perhaps to a point beyond recovery.

This fact seems to have been ignored by the early uses of this anæsthetic, who gave it by a continuous method, such as is used for chloroform and ether. The action of ethyl bromide upon the nervous system is one of great rapidity, but in clearly defined stages. A very slight inhalation dilates the capillaries, probably by action on the vasomotor, producing profuse perspiration, and stimulates all the secretory glands.

The peripheric nervous paralysis evinced by the congestion of the capillaries is now followed by the regular symptoms of an ascending nervous insensibility. The sense of touch still remains, but of an analgesic nature; that is to say, that, although there is perfect knowledge of the touch, there seems to be no appreciation of the force applied, the irritability of the skin totally disappears, and such a thing as a pin prick is only felt as a contact, not at all as a pain. The spinal reflex action determined by peripheric excitement is now abolished, and this phenomenon rises higher up the spinal ganglion.

It is particularly instructive, in experimenting with animals in which these nervous changes are accomplished with sufficient slowness, to observe how the motor reflex remains normal long after the peripheric sensibility is lost; that is to say, when the animal has reached this stage, it remains immovable when pricked or pinched, but if frightened by a rapid gesture, or by a noise, immediately struggles, its members endowed with perfect co-ordinate motion. The same phenomenon is easily seen in the human subject when in this stage of analgesia, for while it is then possible to perform an absolutely painless operation, it is still perfectly possible to maintain a conversation with the patient, or that which is still more easy and fully as striking, to command the subject to execute any motion with a member and it is immediately done, proving the maintenance of full control over the motor reflexes in spite of the loss of all peripheric sensibility and dependent reflexes.

As the peripheric nerve paralysis affects the corresponding reflex centre higher and higher up the cord, at a given time it is manifest that the cervical origins of the pneumogastric nerve are affected, and the respiration is for a moment arrested by a voluntary action of the subject, thus evincing the consciousness of the invasion of an exterior influence into this purely reflex centre. The shock of invasion provokes the voluntary arrest of respiration, which is only momentary. The breathing is at once renewed, but

is now deep and totally diaphragmatic, slow but regular. The affection of the pneumogastric centres is immediately accompanied by the phenomena of ocular reflex, evinced by the paralysis of the iris and its relaxation and consequent dilatation of the pupilla. At this moment a slight clonic muscular reaction is possible and the lines of the face harden, evincing the setting of the muscles in a general contraction throughout the body. Such a phenomenon is of a very slight degree and of slight persistence. There is no convulsive action, and up to this point no trace of any effect on the central nervous system is manifested. And this is what is to be expected in a case of an ascending reflex paralysis such as is developed by ethyl bromide. The action of the drug is now reaching the bulbous, and at this point its effect on the central nervous system commences. The pupil is dilated to its maximum, and there is no reaction to light; the eyes are fixed, their optical axes parallel, as a general rule; the respiration is deep, the cardiac beat slightly quickened and strong; peripheric congestion. There has been some ringing in the ears. At such a point the patient loses the power of the motor nerves, ceases to hear commands, becomes unable to obey them by a process of invading lassitude, and with a possible instant of mental excitement drops into unconsciousness, the last phenomenon of a complete anæsthesia induced by ethyl bromide. If at this moment the administration of the drug is stopped, the unconscious condition persists only for a few minutes, —three to seven,—then gives way to a lethargic condition in which a patient hears and understands what is said, and may feel the contact of an instrument. Little by little he reaches a condition in which strong commands will obtain a motor obedience, and soon will come a reply to questions, but for some moments there is no perception of pain, and this sense is but slowly re-established and fully regained only at the last phenomenon of recovery from the drug. As consciousness returns the phenomena noted pass in inverse order, for we are dealing with the retrograde nervous tension, the return to a normal condition emanating from the central nervous system, down the spinal reflex centre, through the sensory reflexes to the periphery, and at that point reaching the complete recovery to the normal condition. It is to be remembered that the motor reflexes are not lost until unconsciousness appears, but their recovery is slower than that of the central nervous system, for the reason that the drugged sensory nerves shut out all impressions, and until their recovery the central nervous system will not call

into action its motor nerves. It is of exceeding interest to observe this phenomenon. Suppose that a patient is recovering from unconsciousness while the extraction of teeth is going on, there will be no motion made by the subject, unless such motion be commanded by the operator, until a return to the normal condition is so complete that the sense of pain (peripheric sensation) provokes a motor reflex. It is remarkable how long an interval there is between the possibility of exciting the motor reflex by an auditory sensation and that of obtaining any motion in response to the sensation of pain.

A review of experiments, the substance of which is outlined above, decided von Ziemacki to place in parallel columns, for purpose of comparison, some of the phenomena induced by ethyl bromide and those evinced when chloroform is used as an anæsthetic. Such a tabulated form of statements is very striking, and is worth repeating. The conclusions are in substance as follows:

1. Chloroform acts on the intelligence, which becomes troubled; sensation of touch and pain remain unaltered. Ethyl bromide first acts on the sensation of pain; analgesia complete first of all; leaves the intelligence almost intact.

2. Chloroform causes strong excitation of the central nervous system. Ethyl bromide causes no wandering of the mind, no excitation of the central nervous system.

3. Following the chloroformic sleep is the relaxation of the muscles. Following ethyl bromide, a slight tonic reaction of the muscles.

4. Under chloroform then commence, successively, the weakening alteration and loss of consciousness. Under ethyl bromide, after the analgesia the consciousness is lost.

5. Chloroform acts last of all on the sense of pain. Ethyl bromide acts last on the intelligence.

6. Chloroform does not stimulate the respiration during narcosis. Ethyl bromide stimulates respiration during narcosis.

7. Chloroform never causes any clonic contraction. Ethyl bromide sometimes produces clonic contraction during the narcosis.

8. Chloroform causes nausea and vomiting almost invariably after narcosis. Ethyl bromide is rarely followed by sickness or vomiting.

9. Recovery from chloroform depression and return to consciousness are as slow to appear as is the anæsthesia slow to induce.

The anæsthesia and its recovery are both rapid when induced by ethyl bromide.

Malherbe, in terminating his report on the physiological action of ethyl bromide, concludes as follows: "The action of the bromide is much less toxic than that of chloroform; the dilatation of the pupil and contraction of the masseters appear rapidly. The respiration, slow for an instant, increases in rapidity and finally becomes irregular if the dose is prolonged and heavy. The muscular contraction disappears with the suspension of the anæsthetic inhalation. The reagent determines a strong excitation of the excretory glands. Ethyl bromide seems to act as a stimulant on the nervous system, and particularly the vital centres. The respiration is threatened more than the heart.

"Preparation and Administration.—Place the patient in as nearly a reclining position as possible. See that the neck- and waist-bands are free, so that the patient can take a full, deep inhalation easily; the stomach empty, though that is not essential. Place a few drops of the ethyl bromide on a folded towel (one of large mesh preferred) and pass it over the nose of the patient to accustom to the odor. Immediately, upon the upper side of the towel, pour out about three grammes of the reagent, and rapidly reverse the towel; apply it closely to the nose and mouth, so that every inhalation may be taken through its meshes.

"For a moment the patient holds his breath, perhaps makes a slight effort to pull away the towel, at the same time swallowing in rapid succession the saliva which is secreted abundantly. In an instant a long inhalation is made, followed by others, especially so if commanded by the operator. The face becomes red, eyes fixed, eyelids difficult to raise with the finger, lines of face drawn, jaw set, and a general muscular contraction of short duration may be manifested. After five or six inhalations the patient has lost all sense of pain, but is still conscious. At this point we could begin operating could we continue the anæsthetic. This is the time to begin operations outside of the mouth. A few grammes again poured on the towel and inhaled result in complete unconsciousness, if not already obtained with the first dose. Time, one-half to one minute and a half, seldom longer. Pulse rapid and strong, respiration deep and of about normal rapidity. The longer the drug is applied the longer till recovery.

"For minor surgery, extracting teeth or nerves, opening abscesses, etc., I know of no better anæsthetic. Easily applied, quick

in action and in recovery. No scenting up of office, or hours spent in the administering and recovery of the patient from the nausea and vomiting generally accompanying ether or chloroform.

“As to the safety of the reagent, in investigating statistics where pure ethyl bromide alone has been used I find no fatalities, bad results, or after-effects. In my own experience, having administered it to both old and young, people feeble in health as well as the robust, I have met with only pleasing results, and I find that patients take very kindly to it. Let me commend ethyl bromide not only to your notice, but your application.”

Abstracts and Translations.

A SIMPLE METHOD OF SWAGING TIN PLATES, FOR VULCANITE WORK, WITHOUT A SWAGER.¹

BY VERNON KNOWLES, L.D.S. (ENG.).

PROSTHETIC dentistry being one of the most important branches of our profession, I feel I need hardly apologize for bringing the subject of my paper and demonstration before your notice, seeing that it treats in a practical way a subject that is of vital importance to us all. The days for making trial plates with wax palates are nearly if not quite over, and ere long any practitioner who continues to do so will, indeed, be a *rara avis*.

The advantages of using soft metal (tin) as a base-plate are so obvious that I need only just mention a few of the most important in passing. Perhaps the first and chief advantage is that we get our vulcanite plates of *even thickness all through*; hence they are much stronger, and the plates can be made thinner and therefore lighter, also the rugæ come out well marked. Then, again, soft metal base-plates are practically ridged, hence there is no risk of getting a false bite; and from the patient's point of view they are much more comfortable. It would perhaps be as well, before bringing before your notice the method that I have been using for some time past, to take a glance at the swagers in use at the present

¹ Read at the annual meeting, held at Bath, May, 1898.

moment. If my memory serves me right, the first that came out was Mr. Humby's. This swager, as most of you are aware, is practically a miniature vulcanizer, and by means of the steam generated the soft metal (meta-metal) is "blown" on to the plaster model. The essential defect in this method is, that, as the meta-metal has to be clamped down tight to prevent the steam escaping, the portion that is forced onto the model naturally becomes stretched, so that the metal over the middle of the palate is much thinner than at the sides, and in the case of deep palates this often occurs to such an extent that the steam forces its way right through the metal, when of course it is impossible to get the plate home. Then again, the steam has to be let out quickly, each time a plate is blown up, to prevent a vacuum being formed, and as three plates are usually required, this process becomes very tedious, not to say dirty. I may say that I have it on the authority of Mr. Humby himself, that his invention was not in the first place intended for this purpose, but for quite a different one, and was afterwards adapted for use in the dental laboratory. Nevertheless, I think you will all agree that, in spite of its apparent defects, Mr. Humby's swager was a step—in fact, the first step—in the right direction.

The next, I believe, was Mr. Gartrell's swager, which, whilst being a distinct improvement on the one already alluded to, is by no means perfect, as any one who has used it must admit. The thread on the screw, for some reason or another, is always getting out of order, and, a more important objection still, the shot have a way of losing their rotundity, and thus their use. Then, of course, remains the fact that one must have two impressions to work to, one for casting in fusible metal for swaging the plates, and the other for vulcanizing on, which entails more work and loss of time.

The most satisfactory swager I have kept until last, and that is Grundy's. This swager, as far as I know, and I have gone carefully into the matter, really does all that its inventor claims for it, a fact that I am sorry to say is all too rare, for even in dental appliances, as a modern bard has it, "things are not what they seem." But doubtless it has occurred to you that this swager, with all its advantages, is, at the price of five pounds, really dear, seeing that all it accomplishes is nothing more nor less than making plates of grained tin fit a plaster model. Hence I venture to bring before your notice a method which I have been using in my work-room for several months past, and which, whilst accomplishing all

that the aforementioned swagers can do, is much quicker to work and can be purchased at merely a nominal price. You will readily see that it consists of a round gun-metal flask in two halves, with long lugs to guide the two parts into position. One half has an opening cut at one side into which a slot fits, which can be removed when one wants to line an impression. Each half has a nick cut on the inner surface to prevent the matrix twisting. The matrix used is compo; hence the name, "The Compo Swaging Flask." If you will allow me, I will pass round a few specimens of the work in its different stages for your inspection, and while they are going round I will put this paper aside and give a practical demonstration as to the working of this method.

DIRECTIONS FOR WORKING THE COMPO SWAGING FLASK.

(A) LINING THE MODEL.

(1) Remove the slot from the bottom of the flask, fill flask about three parts full of compo, and embed the impression tray in it, the handle of the same projecting through the opening. Cool under tap.

(2) Brush over with French chalk and water, or soap and water, and, having filled the top part of flask with compo (leaving it slightly higher in the centre), squeeze the two parts of the flask together in plaster press, or parallel vice, and when the two parts of flask are one-eighth of an inch apart, press thumb over slot to prevent any more compo coming out. Remove immediately, cool under tap, and part as soon as possible, then thoroughly chill.

(3) Cut a piece of lining metal of suitable shape, and mould on compo model with fingers, taking care to get all creases out, then partially squeeze up in vice, open, remove metal, trim, and get any creases out; squeeze up second time right home; open, place metal in position on impression, turn up outside edge at back slightly, so as to get better hold in the plaster, tap out compo setting, tray, etc., from flask and cast, remove compo, etc., with boiling water.

N.B.—The above instructions apply especially to edentulous cases. Should there be teeth standing, the holes in the impression must be lubricated and filled up with small portions of soft compo, which can be removed before casting.

Those practitioners who do not line their models should commence with paragraph B.

(B) TRIAL PLATES.

(1) Put slot back in place, fill bottom part of flask with soft compo, press model into the same, not too deep, only just deep enough to get an impression. Press compo round sides of model until flat, cool under tap, and remove model, slightly bevel the edge of the impression obtained and lubricate.

(2) Fill top part of flask with compo, as before, squeeze both parts together in vice, cool at once under tap, part, and then thoroughly chill.

(3) Cut suitable piece of soft metal, mould it on to compo, partially squeeze up in vice, remove, trim, so that it goes over the gum margin about three-sixteenths of an inch, and squeeze up home. Take a smaller piece of metal, cut so as to reach gum margin only and one-eighth of an inch from palatine edge of No. 1, squeeze up on top of first plate, and then a third on top of the other two, also one-eighth of an inch shorter than No. 2. This is to give a sloping edge. Tack together with hard wax, and mount teeth, building up the gum margin with wax if required.

N.B.—Should teeth be standing, follow directions given in foot-note to paragraph 3 on Lining Plates.

(C) POLISHING PLATE.

(1) Place trial plate, on which teeth have been mounted, on model and left forefinger round the incisor teeth, and squeeze onto the palate a piece of compo (shape of an egg) to get impression of lingual surface of plate and teeth. Hold model and compo under tap to cool same and also prevent teeth shifting.

(2) Fill bottom of flask three parts with compo and embed the under surface of the impression of the plate, cool, lubricate, fill top, and squeeze up as before. Cool at once, part, and thoroughly chill.

(3) Mould piece of soft metal, same as used for trial plates, onto impression, squeeze up partially, remove, trim, squeeze up home. Place on the trial plate, fix round the edges of the teeth with hot wax knife, having previously bent up slightly the corners at the back of the polisher so as to hold well in top plaster in flasking.

N.B.—When the polishing plate has been pulled off in the top plaster carefully polish the surface next to the vulcanite with whiting or French chalk so as to remove any graining that may be in the metal. If this precaution is taken the case comes out with a much better polish.

Any compo can be employed with this method, but to obtain the best results "swaging compo" must be used, especially prepared by Messrs. Ash & Sons, and the Dental Manufacturing Company. A flask takes one pound of compo, and should be lubricated before inserting the same. The lining metal should be very thin, as near the thickness of gold-leaf as possible. The soft metal for trial plates should be No. 6 gauge (Ash) and five and a half inches wide, for polishing plates, No. 4, three and one-quarter inches wide, to save waste.

Too much care cannot be taken to insure that the compo in each of the various stages is thoroughly hard before swaging the plates, particularly in warm weather. It is advisable for those who have not had previous experience with the "Compo Swaging Flask," to commence by swaging up trial and polishing plates, so as to get accustomed to this method before essaying to line models, the details of which might be found not quite so easy.—*Journal of the British Dental Association.*

LITHIA WATERS.

SATISFACTORY progress in rational therapeutics can only be attained when there is accurate knowledge as to the nature of the materials used, and substantial constancy in the composition of the preparation. One of the most serious objections to secret remedies is the impossibility of being assured as to their nature. The preference given to active principles over the old-fashioned crude drugs is also based on this principle. When, therefore, physicians use natural products as therapeutic agents, there will be no certainty as to cause or constancy of results unless analysis shows the general character of such products, and proper supervision prevents the sale of those which do not contain the active ingredients.

The use of so-called lithia waters is one of the petty disgraces of practical therapeutics. It is not unlikely that the value of medicinal ingredients in water has been much exaggerated. Indeed, a part of the popularity of some springs is doubtless a relic of ancient superstition, under the influence of which a spring was supposed to be the abode of a divinity. The lithia-water theory has, however, been developed in recent years; it claims descent from science, not from superstition. We do not care to deal here with the question whether lithium carbonate will prevent the precipitation of uric acid more effectually than other carbonates; this may be assumed for the purpose of argument. When, however, lithia waters are given for such purpose, the chances are that the patient will get at best but little of the remedy intended, for most of the natural waters sold under that title have but little lithium in them. In one which was extensively advertised as very rich, tests failed to show any appreciable amount, and other kinds in the market contain but minute amounts of lithium compounds. Uric acid requires about half its weight of lithium carbonate to form a complete salt; taking into consideration the average amount of uric acid excreted in twenty-four hours, it is obvious that no distinct neutralizing action is to be expected from the administration of waters which contain less than a grain of the lithium salt to the gallon.

Many physicians undoubtedly prescribe the water without giving the chemical features any thought, or without taking the trouble to find out if the claims made on the label or in the advertisement are true. That good results occasionally follow such

treatment is doubtless due to the fact that the water is pure and used freely. If lithium salts are indicated they should be given as such, and the superstitious veneration for a natural water should not be allowed a place in modern therapeutics. Natural waters, rich in lithium, are known, but several contain so much other mineral matter as to make them unsuited for free use.—*Editorial, Philadelphia Polyclinic.*

Reports of Society Meetings.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A REGULAR meeting of the Institute was held Tuesday evening, October 4, 1898, at the residence of Dr. Benjamin Lord, No. 34 West Twenty-eighth Street, New York City, the Vice-President, Dr. C. A. Woodward, in the chair.

Dr. Woodward.—It is with great pleasure that the chair greets you, one and all, at this our first meeting of the season. It goes without saying that you have had a pleasant vacation, and I hope you have all come back with enthusiasm and determination to make this year a great one for this society. Last year was a good one, but it is believed that we can do better, and if we have the enthusiasm we ought to have, we will be able to accomplish it.

The minutes of the previous meeting of the Institute were read and approved.

Dr. F. Milton Smith.—The case which I present to the meeting to-night, and which some of you have seen, is an interesting one to me. Through an abnormal occlusion of long standing the patient, a lady of probably twenty-five years, has developed a deformity which detracts materially from the appearance of an otherwise pleasing face. Those of you who have seen it have noted that when the face is at rest the centre of the chin is thrown very much off the median line. There is also quite a depression on the left side of the face at a point opposite the upper canine tooth. An ineffectual attempt was made some years since to regulate the teeth, the deformity of the face then being not so apparent. I would be glad to receive suggestions looking to a correction of the deformity.

Dr. J. Adams Bishop.—There is only one suggestion that occurs to me, and that is to move the upper cuspid of the left side outward. As the mouth appears to me, I think it could be brought over with little trouble and would better balance the angles of the mouth.

Dr. J. Morgan Howe.—The case of irregular occlusion presented by Dr. Smith is an interesting one, and I think it points especially to the value of early intervention in cases of this kind. I suppose that the normal occlusion of the jaw must have been interfered with from the time of the development of the permanent teeth; that they developed in such relation as to throw the jaw over to one side. I have seen two or three cases like this in that respect. If the teeth had been interfered with, and placed in their proper position as they were developing, there would probably have been no difficulty, but I should suspect that after the jaw has been held over to one side for a series of years the temporo-maxillary articulation would be changed on both sides; that more or less thickening or deposition would change the shape of the glenoid cavities, and I should doubt very much whether interference with the position of the teeth at a late period would effect the desired change.

Dr. George S. Allan.—It is a case of double malformation. 1. The lower jaw is thrown out of its axial line so much as not to be accounted for by any jumping of the bite. This condition is congenital and cannot be remedied. 2. The articulation, owing to the contracted arch of the upper jaw, is altogether one-sided. This condition can be changed and the appearance of the face much improved; the articulation of the teeth at the same time being corrected.

Dr. C. S. Stockton.—I have a case which is certainly new and interesting to me. The patient is about thirty-five years of age. There was considerable swelling between the two central upper incisors, about equally distant between the gum margin and the apex of the roots. It was hard and had been very painful. I applied a capsicum plaster and had the patient call the next morning, thinking it a very simple and easy case to cure. It did not yield, and in a few days, probably a week, I concluded that the tooth was dead, although it gave no evidence of it whatever, every appearance being that of a live tooth except a slight soreness. However, I entered the tooth, found the pulp alive, and removed it, and thought there would be no more trouble; but, strange to say, it did not get well, and after waiting a sufficient time I removed the tooth. The gum-tissue was intact, there was no evidence of any disturbance except this swelling; when the tooth was removed the disease entirely disappeared. I would like to know what caused that. The patient healthy, the

tissues intact all around the neck of the tooth, what should cause the caries of the root of the tooth as you see it?

Dr. C. D. Cook.—Caries or necrosis.

Dr. Stockton.—Caries I should say; if it had been necrosis I think it would have attacked the jaw, therefore I call it caries.

Dr. W. St. George Elliott.—I would like to state a case that came into my hands a few days ago, that of a gentleman about fifty years of age, teeth in good condition with the exception of the right upper lateral, which was abnormally white. I made up my mind that the tooth was dead; there was no apparent cavity in it, but merely the difference in color. On opening it from the palatine surface I immediately struck what appeared to be a living pulp, but, on further investigation, I found it was gum-tissue. In going farther I found that the whole of the interior of the tooth was filled with gum-tissue, and finally found a large cavity nearly a quarter of an inch in diameter below the gum, giving no external evidence of its presence whatever.

Dr. George L. Parmele, of Hartford, Conn., being introduced by the president, read a paper on "Tothe-Lore."

(For Dr. Parmele's paper, see page 1.)

Dr. Elliott.—In addition to what Dr. Parmele has told us, there are some interesting features of folk-lore in the East Indies. It is remarkable that the impression exists that pain in the mouth comes from a worm, remarkable inasmuch as it is general all over China, the Malayan Archipelago, and Japan. All through the East the dentist generally has his establishment on the sidewalk. If you were to go to a Chinese dentist with a toothache, he would say at once, "You have a worm in the tooth;" he would then examine your mouth, and in a few minutes he would bring out with his two chop-sticks a little worm; if the toothache was very bad he would introduce the chop-sticks again and take out another worm. The explanation is not difficult. On the side of the spatula there is a recess cut, a very shallow recess, and that is filled with artificial worms and covered with a thin piece of paper; when the spatula is put into the mouth the paper becomes wet and easily torn, and the worms escape into the mouth. It is an important fact that the Japanese are the only people in the world up to modern times who have done anything to speak of with artificial teeth. The Japanese, although they took their folk-lore and knowledge from the Chinese, have gone far beyond them. They can extract all the teeth and make artificial substitutes for both upper and lower jaws. They are of wood and remarkably serviceable.

Dr. Robert H. M. Dawbarn.—It has occurred to me that possibly Dr. Parmele might like to add to his list of Shakespearian folk-lore two more quotations of a very similar nature. In *King Henry VI.*, third part, there are several such allusions. Dr. Parmele has mentioned one in *Richard III.* Two others are as follows in *Henry VI.* You remember the scene in which the humpbacked Duke of Gloster visits King Henry VII. in the tower and gloats over him, and the king, tormented beyond endurance, hits back by saying to Richard:

“Teeth hadst thou in thy head when thou wast born,
To signify, thou cam’st to bite the world.”

Whereupon Richard, of course, up and kills him,—which was considered as being both an effective and a witty repartee in those days. But subsequently, in soliloquizing, he acknowledges the truth of the indictment as follows:

“The midwife wonder’d; and the women cried,
‘O, Jesus bless us, he is born with teeth!’
And so I was; which plainly signified
That I should snarl, and bite, and play the dog.”

It is a fact that that same curious belief, that it is unlucky to be born with teeth, prevails in England to this day, and also in certain parts of this country, particularly where the descendants of English settlers are found.

Some years ago, in making some researches, I managed to collect as many as twenty-five indications of inherited syphilis, and the eminent surgeon Erichsen makes the statement that of such signs one is extremely early dentition; if that is the fact, then certainly early dentition would indicate bad luck.

I received a note from Dr. Howe a few days ago, asking me to discuss before you the subject of inflammation and suppuration, and saying that thirty to forty minutes were to be set aside for the purpose. I do not intend to talk to that extent, and the first member who wishes to intimate that he has heard enough will please yawn, and I will take the hint promptly.

The subject of inflammation and suppuration is as wide as pathology. One-half of all our general surgery is the surgery of pus, and the subject is practically limitless; any surgeon, I suppose, could talk all night upon it. It is merely a question of what you want to hear. Dr. Howe made a short list of subjects that he wanted touched upon; if there are in addition any others, and you will let me know, I will do what I can.

It appears to me that the points in relation to the subject that it would be most desirable for our members to listen to are the reasons for the differences often observed in severity and duration of the inflammatory process, the speedy termination, or, on the other hand, the long, protracted inflammatory condition. These are the points, I think, upon which some persons will wish to ask questions.

Now, suppose I take up these things in the order in which Dr. Howe mentioned them. First, the reasons for the difference in the severity and duration of inflammatory processes. I assume that by "inflammatory" the word "microbic" might be taken as a synonyme. "Inflammation," as a definition, as you know, is a word over which there has been any amount of discussion. "Inflammation" is now rather generally accepted as meaning a pathological process of microbic origin, and pathology may be defined as histology under difficulties. Now suppurative pathology is what you want discussed for the moment,—that is, the severity and duration of the inflammatory processes of a suppurative type.

There is hardly a microbe that is not capable of producing supuration. Senn gives a list of ten mainly at fault, but any microbe is more or less of an irritant. The most common among these ten are, in severe suppuration, the streptococcus pyogenes, and in the milder, the staphylococcus pyogenes, of three kinds,—aureus, albus, and citreus. These four cover the great bulk of what we have to deal with. Now, you can tell before you see the patient, if you examine a drop of pus under the microscope, nine times out of ten, whether that patient is suffering misery or not. If I take a drop of the pus and stain it with methylene-blue, or other chemicals used for this purpose, and examine the little dotlets under the microscope, and find them clustered together in little masses or bunches, those are staphylococci pyogenes, and the patient is probably suffering very little; if, however, I find under the microscope apparently the same little dotlets, but arranged in strips, or bands, or chains, in a row, these are streptococci pyogenes, and I can be certain that the patient is having a rise of temperature, is unable to sleep at nights, and in considerable pain. The shorter the chains the worse the type of the microbe seems to be. A chain of three or four dotlets would thus indicate worse conditions than one of ten or twelve. As to the difference, then, in the severity of the inflammatory processes, they depend upon two factors: first, the kind of microbe causing it by the irritating presence of the chemicals called ptomaines and toxins, produced by its life and death processes; and, second, whether the inflammatory products are in unyielding tissues.

For example, of the five classes of "felons" (paronychia and conditions resembling it), the one that is the most agonizing is the one most deeply placed,—*i.e.*, under the periosteum. It is then the unyielding, inelastic character of the periosteum of the jaw that makes an immense difference in the amount of suffering, when pus forms beneath it.

As to the duration of the inflammatory suppurative processes, that depends upon quite a number of different factors. You all know that one of the modern names for the white blood-cells, which are little cannibals, guerilla warriors, is *phagocytes*, because they seek to devour the microbes. Wherever the microbes are found, there the white blood-cells accumulate in billions; and these immense cohorts of white cells attack the microbes wherever present and proceed to devour them. You can see under the microscope the microbes disappearing into the interior of these white cells until they cannot be followed farther, and presumably disintegrate. If the microbes get the upper hand, presently the white cells themselves die and disintegrate. Pus is a collection of such white blood-cells, plus the microbes, plus the "liquor puris," which is simply blood serum. In a case of suppuration, if you have only a few microbes present, it is quite conceivable that there may be a good deal of misery for a little while. If the microbes get the upper hand, and increase in numbers, then you begin to have a development of pus, and in ninety-nine times out of a hundred there is only one treatment for that pus, and that is to let it out; there is no medicine that will relieve it, and so long as it is left there, it is a steady trouble. If the microbes are present within bone in small numbers, and continue so, they are capable of raising a very slow and chronic form of inflammation, whereas, if they are present in large amounts in the bone, you have quite frequently *necrosis*,—that is, death of bone *en masse*, and promptly. Except in few instances, such as phosphorus necrosis, which is caused by a chemical irritant, in the great majority of cases, necrosis is caused by suppurative microbes, of any one of the numerous, different kinds. Now, if those microbes, instead of being in large amount, are only present in very small amount, and nevertheless the phagocytes cannot succeed in getting at them to destroy them, they may, by their irritating presence, induce a chronic osteitis. Their continued presence in the bone for months or longer is capable of exciting the growth of cells which are called "osteoclasts." These are a kind of "giant-cell," and wherever you have a chronic inflammatory process of absorption of bone going on they are found present, so that bone which was

originally compact becomes more porous, and then that porous bone breaks down still further; and always in these chronic forms you find these osteoclasts present. After that porous bone becomes still more porous, comparatively large open spaces are formed in it, called the "caverns of Howship." Actual cavities in the bone of considerable size result from continued activity in this line. Often surrounding such examples of osteoporosis there will be found a zone of abnormally dense bone,—an osteosclerosis. The familiar case of Sir Benjamin Brodie, that famous English surgeon, is illustrative. He had a case once of a woman who came to him in great suffering and begged him to cut her leg off, saying she could no longer endure the pain. He finally amputated her leg at the knee, and subsequently, upon splitting open the tibia, found in it a chronic abscess,—a large, ragged cavity in the bone filled with pus. Of course, the correct treatment would have been to chisel into the cavity for drainage, and thus save the limb. Such an abscess is called to-day a "Brodie abscess,"—caused, as we have seen, by the presence of a few microbes, long continued, and exciting the activity of the osteoclasts.

As to the speedy termination of a long protracted suppurative inflammation, I think I have covered this.

Why does inflammation in the tissues contiguous to the bone sometimes terminate in necrosis, but more frequently does not?

I have also practically covered that point; it is a mere question of the number of microbes and their character, whether they are in unyielding tissue and whether they are so numerous that they can multiply readily. It is not the microbes themselves that kill the bone; it is the poisons they produce by their activities, and which also result from their death and decomposition.

I have been discussing necrosis. Caries is an absolutely distinct thing, and is almost invariably caused by the activity of the tubercle bacillus; so much so that caries of bone and tuberculosis of bone are now described as one and the same thing. In the matter of dental caries, that seems to be a disease by itself, and you, better than I, are able to determine what the cause of that is. With the exception of dental caries, caries differing from necrosis does not select dense bone; it will select the cancellous tissue of the tarsus and the bodies of the vertebræ.

Speaking of these suppurative microbes, there is one point that will interest you. There is a discussion that has never been settled as to whether the streptococcus of pus, this little microbe which is so extremely irritant, is or is not identical with the streptococcus

of erysipelas. I have in my desk at home a letter from Professor Prudden, of Columbia University, taking the view that these microbes are identical, the clinical difference being probably that in the case of erysipelas the streptococci spread along the lymphatics, and in the case of suppuration, along the blood-vessels. Professor Welch, of Johns Hopkins University, takes the same view; but there are many pathologists who claim just the reverse,—for example Fehleisen, who thinks they are different microbes. It is one of the points in bacteriology to-day which ought to be cleared up, and in which there is much active work being done.

I need not say as to local indications, that nothing that you may apply to the outside, upon the skin or where it cannot reach the microbes directly, is going to scare those microbes. Still, in a certain way, but not by directly attacking those microbes, heat and cold have a therapeutic value. Every one knows that with a felon, for example, if treated locally (which it ought not to be except by the knife), the first thing usually is to apply cold, and then subsequently to apply heat as by a poultice. There is a reason for this, namely, that under cold the amœboid activity of the white blood-cells is very much retarded, and perhaps thus the formation of pus may be prevented. Now the amœba prima of ordinary ditch-water, if studied under the microscope, will move but sluggishly in cold water, but if the water is warm those primitive precursors of white blood-cells are very manifold more active. In other words, white blood-cells under heat can escape with great ease from the blood-vessels; but if you apply cold you check their activity. Therefore, when you have given up the hope of preventing pus and wish to bring a boil "to a head," you aid this by applying heat. But during the time that the medical man, as distinct from the surgeon, is applying his cold or heat the ptomaines and toxins from the microbes are poisoning the patient constitutionally, and threaten death locally. Therefore the knife, to give them free exit, is the logical remedy.

As to medicinal means, there is only one prominent medicine for checking amœboid activity, and that is quinine. All works upon therapeutics state that full doses of quinine will gradually diminish the tendency to suppuration. It does not, however, follow that you have helped your patient by preventing a tendency to suppuration, for, as stated heretofore, these accumulated leucocytes (white blood-cells, phagocytes) have power to attack and devour microbes.

Is there any other point now in connection with this subject? I think I have covered those that Dr. Howe asked me to speak on. Dr. Howe, in sending me this request, enclosed a brief history of a

case in which there seemed to be a very unusually rapid suppuration. It is a case in which, if I understand it correctly, there was simply a discolored tooth containing a cavity ; it had given no trouble whatever ; he opened it to treat the discoloration, and simply found perfectly dry detritus. Having removed that, he treated the tooth with electrozone to bleach it and disinfect it, sealed it up, and for about twenty-four hours there was no discomfort ; but pain appeared on the second day, and, the cotton being removed, a small flood of pus came out, showing that while there had been no discomfort whatever, the cleaning out of that detritus had, apparently, in some twelve to sixteen hours induced beginning suppuration, the microbes doubtlessly entering with the air. It seems to me likely that that suppurative activity had started pretty promptly after the operation. The electrozone had not been successful in disinfecting down to the bottom, and the suppurative activity had not reached the point at which it annoyed the patient until a number of hours had gone by. Now, this is a very interesting point, and I discussed it with various surgical friends of mine, none of whom could mention an authentic instance of pus-formation in less than twenty-four hours time after infection. I, myself, have never seen a case in which, although the wound might show every evidence of infection, actual pus appeared within twenty-four hours from the time of incision. I would simply suggest, not as a bleaching agent at all, but as a further antiseptic, the use of the formalin solution, or else, what I like very much in suppurating wounds, campho-phénique, which is nearly equal parts of camphor and carbolic acid (49 camphor, 51 phenol). It is unirritating ; even if put on the skin it will not blister ; and I think it might be a desirable thing to use in roots of teeth, much more so than electrozone would be.

Dr. Howe.—I am very much obliged to Dr. Dawbarn, and I am sure we all are. I am especially obliged to him for the care and attention that he has given to the points that I suggested to him, and he has remembered quite well the points of the case as I related them. I used electrozone because I wanted to bleach the tooth as well as disinfect it, it has effected both for me many times, but it did not answer in this case. I suspected, as soon as the patient reported the painful condition, that my electrozone had been kept a little too long. The point I wish to note especially was exactly what Dr. Dawbarn has stated,—that suppuration took place in a shorter time than I had ever known it to occur after the first indications of the disturbance, and I wanted him to tell in how short a time suppuration can result after inflammation begins. The first indications of

the slightest discomfort were only sixteen hours from the time that I opened the root-canal and got a discharge of pus. When I opened the tooth it was entirely free from inflammation, and it never had caused any disturbance; the root-canal was entirely dry, and I did not disturb it more than half-way up the canal. That being Monday morning, it was Tuesday afternoon before the slightest sign of disturbance was recognized by the patient. I had cautioned him to notice carefully, and if there was the slightest discomfort to report at once. He did not come back, because it was so very slight on Tuesday afternoon, but Tuesday night it kept him awake, and on Wednesday morning, on removing all obstructions from the root-canal, I got a discharge through it of thick creamy pus. I would like to ask Dr. Dawbarn an additional question,—that is, to kindly give us more particularly than he did the clinical conditions as between necrosis and caries. That suggestion comes in connection with remarks that were made early in the evening.

Dr. Dawbarn.—I hardly know how to answer that, except, perhaps, by giving a typical clinical picture, and assume that you are discussing bones other than those of the teeth. I will give you one of the most common typical pictures of necrosis, then of caries. In the former we will say a child has been playing in the snow for a number of hours; he returns and goes to bed at night in the usual condition, but wakes up in the night in great agony. The pain is in a majority of cases in the shin; that is the most frequent seat of acute necrosis, somewhere near the knee. The agony may be so severe that the child is delirious, and he may hence even be unable to point out where the pain is. There have been all sorts of absurd diagnoses made in such cases. If nothing is done in the way of relief, the patient dies, or else in a few days pus appears at the surface, and one or a number of fistulæ form, which are technically called *cloacæ*, and which continue to discharge pus indefinitely. They lead down to dead bone, which is called a *sequestrum*. In about three months the sequestrum becomes loose, so that it can be detached from the living bone. This loosening is probably accomplished by the carbonic acid of the blood in its nascent form,—i.e., just at the moment it is created,—which has a certain degree of solvent power upon dead bone.

As to the treatment of the kind of acute osteitis I have been discussing,—a kind which causes necrosis,—if seen early the knife and chisel will do wonders. No other treatment is worth discussing.

If you have made a mistake in diagnosis, your patient will not die from your chiselling into the bone; and if you have not made a mistake, you will have saved the patient either months of suffering or even his life.

If, however, the case is seen late and cloacæ have formed, the surgeon waits until the sequestrum separates, when he removes it by operation, and the remaining bone cavity may be treated in any of the modern ways. (Perhaps some of you remember my discussion of those a year or more ago before this Institute.)

Now a typical picture of caries. This is molecular death of bone, *not en masse*. In contrast with necrosis, a typical case of caries is extremely chronic. Assuming it to be in the tarsus, the child will limp a little; the foot will be somewhat swollen, as a rule, not red, but white. A common name is "white swelling." It will be worse when the patient's stomach is upset; it will be "barometric,"—*i.e.*, worse in bad weather. It will be at first more uncomfortable after rest; later, after exercise. Presently a point of redness will appear, and there will be a breaking down of the skin and exit of pus. If you were to run a probe into the fistula thus formed, you would probably be able to stick the end of it into soft bone; and the pus is often cheesy, occasionally gritty from bone-particles; and sometimes the probe, if left in for a while, will actually be discolored by sulphuretted hydrogen. The late Dr. Detmold used to say, *apropos* of these fistulæ, that anybody ought to be able to make a proper diagnosis in such a case without running in a probe or otherwise irritating it. The flabby, large granulations at its margin, the fact that a cold abscess is almost invariably tubercular (carious), and communicates with either a neighboring diseased bone or joint, suffices for an accurate diagnosis. The proper treatment is constitutional and local. The former includes cod-liver oil, milk, fresh air, and sunshine mainly. The latter either ignores the local trouble,—simply protecting the sore from trauma,—or else is as radical as possible, and removes every bit of the disease, scraping and gouging away the softened bone, and even cauterizing in addition. Iodoform is of great value in treating tubercular bone troubles. Sterilized iodoform suspended in sterilized glycerin will often aid in curing them. Clinically there are two distinct types of caries at the two extremes of age,—*viz.*, caries *suppurativa* and caries *sicca*. I have repeatedly seen on the soles of the feet of old people, or on the hands, chronic ulcers producing hardly any pus, but instead a bed of chronic granulation-tissue, which when scraped away exposes the carious bone from which it springs.

This is the so-called dry caries (*sicca*). The freely suppurating type—the kind causing much pus (suppuration)—we find mainly in the young. Psoas abscess is an instance of this,—an accumulation of pus and granular detritus caused by carious activity in the bodies of the vertebræ.

Dr. Elliott.—What do you think of the coal-tar derivatives as antiseptics?

Dr. Dawbarn.—Which of the coal-tar derivatives?

Dr. Elliott.—Antifibrin, for example.

Dr. Dawbarn.—I presume we all know that this is identical with acetanilide. A higher price must be paid for the same drug if ordered under the trade name of *antifebrin*.

None of those coal-tar derivatives, while fairly good anti-rheumatics, antiseptics, and analgesics, are of particular value in tubercular troubles.

Dr. S. E. Davenport.—There is one point which I do not feel like starting a discussion upon to-night, but which seems to me to be a most important one. I remember having referred to it in a conversation with Dr. Howe, and, as he is chairman of the Executive Committee, I hope opportunity will be given at another meeting for an expression of opinion upon the subject. Is it advisable to remove from the canal of a tooth which is being opened for the first time, the pulp having died, the entire contents, or to remove a portion of the *débris* and then put in some germicide? Of course, it is a very old question, which has been many times considered; but we are all a little older now, and possibly some new thoughts may be brought forward on the subject. It has been the opinion of some, I know, that it is better to remove as much of the material as possible, for the sake of allowing the remedy to get to the point where it might be expected to do the most good.

Before sitting down I should like to propose a vote of thanks to our associate member, Dr. Parmele, who has come quite a distance, and who has entertained us most charmingly this evening.

The vote was unanimously carried.

Dr. Smith.—I was intensely interested in Dr. Dawbarn's talk. So many points were touched upon that I have nothing to say, other than to move a vote of thanks to Dr. Dawbarn for the very delightful talk that he has given us, and also to ask a single question of Dr. Howe. Dr. Dawbarn referred to formalin as being such an excellent remedy, as he thought, for cases of this kind. About eighteen months ago Dr. Howe read a paper before our society on this remedy, recommending it to us very highly, espe-

cially, as I remember it, in cases where the root had been newly opened. I should like to ask him what his success has been, and, if good, why he did not use it in this case?

Dr. Howe.—That is a very pertinent question. My success in the use of formalin has been very good, and I do not wish to retract anything I have said in its favor. I would, however, caution against using it in a strength more concentrated than five per cent., for I have found it a very great irritant, and capable of producing great pain. The only reason that I did not use it in the case under consideration this evening was that I wished to begin the bleaching of the tooth immediately, and I have had very good results from the use of electrozone in similar cases. I thought I would save time by combining the action of bleaching and disinfecting, which is practicable with this agent. I think my failure to disinfect the root contents in this case must have been due to using electrozone that had partially decomposed.

A vote of thanks was extended to Dr. Dawbarn, in accordance with Dr. Smith's motion.

Adjourned.

S. E. DAVENPORT, D.D.S., M.D.S.,
Editor The New York Institute of Stomatology.

ACADEMY OF STOMATOLOGY.

A REGULAR meeting of the Academy of Stomatology was held on the evening of October 25, 1898, at 1731 Chestnut Street, with the President, Professor M. H. Cryer, in the chair.

An extempore lecture on "Porcelain Inlays as made by Dr. Jenkins, of Dresden," was delivered by Edwin T. Darby, M.D., D.D.S.

(For Professor Darby's lecture, which was stenographically reported, see page 73.)

DISCUSSION.

Dr. Deems (Baltimore).—I do not know that I can say anything very much to add to what Professor Darby has said. I had the pleasure of making about two hundred of these inlays, and some of them are very perfect operations. There are some essential points. It is necessary to have a cavity shaped at first so that there is no undercut whatever. It is not necessary to use wax or any

adhesive material in order to get the impression out. The best way to remove the impression from a cavity is gradually to coax it with a very fine instrument, inserted beneath the edge, and it will suddenly jump out of itself without being altered in shape. Another essential is perfect cleanliness in handling the material; to secure this the slab upon which the material is mixed should be covered all the time, as the least dust will very likely rise through the body and make a bubble on the surface of the inlay. The fusion of the body must be accomplished slowly, and when the body begins to fuse it should be kept at the fusing-point until seen to flow perfectly. The entire mass will flow at once, just as though one were melting a globule of gold. The retention of the inlay in the cavities is entirely dependent on the cement, and with a diamond disk, three-eighths of an inch in diameter, a number of undercuts should be made in the inlay at points corresponding to undercuts made in the cavity. A disk of small diameter assures a decidedly more steady motion than a larger one. The porcelain, when ground, appears to have the consistence of an Ash tooth, though it is not as strong. The fusing-point of the body is just below that of pure gold, and decidedly higher than that of the Downie body, and in melting it one is not troubled with bubbles, as in the case of the Downie body.

(Replying to questions by Drs. Truman and Guilford.) There is no danger at all of melting the gold matrix which is used, because it is impossible to get platinum thin enough, and, besides, the platinum cannot be adapted so closely to the margins of the cavity. The cement might perhaps wash out to a depth of a hundredth of an inch, which is practically nothing. The proper thickness of gold to use is No. 30 or No. 40.

Dr. Roberts.—In getting the contour of a molar or bicuspid proximal cavity, is it possible to build out that contour without having the body fuse in such a manner as to leave a round corner instead of a sharp contour. With glass inlays it is impossible to do it. Again, when glass is ground and polished, it turns black as coal in the mouth. I have never seen one that did not become black, and would like to know whether this body of Dr. Jenkins is sufficiently dense to enable it to be polished and not get black.

Dr. Darby.—It does not turn black, for the reason that it is superior to the glass inlay in density.

Dr. Deems.—I have never seen any turn black, at least none of those I have made in the last three or four years, but I have seen

glass inlays in that condition, and I have seen the Downie body black, with bubbles upon the surface, and disintegrated at the cervical portion of the filling. I have several specimens of sharp contours which I shall be pleased to show.

(Replying to Dr. Inglis.) It would be possible to use the ordinary gas furnace or an electric furnace, or one need not have a furnace. You can take some of Teaque's compound, make a little muffle, place it over charcoal, and apply a blow-pipe flame to the bottom of the muffle.

Dr. Roberts.—A small disk of thin copper used with water or oil will cut as perfectly as a diamond disk, and even more quickly.

At this point Dr. Darby gave a demonstration, making a porcelain inlay to fit a previously prepared cavity, and the specimens of Dr. Deems were exhibited.

Dr. McQuillen.—I cannot add much to what Dr. Darby has said, but I have enjoyed seeing the work very much. I am still experimenting with this body, though I have not, so far, made any inlays for practical use, but am intensely interested in this kind of work. Dr. Jenkins suggested, the last time I heard from him, the necessity for thoroughly polishing the edges of the cavity before taking an impression.

Dr. Inglis.—I know nothing at all about the porcelain Dr. Darby has shown us. The work is certainly very beautiful, and the specimens that have been shown are quite perfect. From its appearance the porcelain seems to have a density even greater than that which characterizes the Land body. My experience with porcelain has been entirely with the Land and Moffitt bodies, but I have had some experience with German glass and the Timme glass body. I found the latter two entirely worthless and without stability as filling-materials. I was enabled to get good color, because of the opacity of the glass, and the fillings did not show good edges. The Land and Moffitt bodies occasionally give a frail edge, but when used in bulk, as in contours, it gives a very strong edge. The color of the teeth can be matched to a nicety. I have been very much pleased with this demonstration. The apparatus shown is beautifully adapted to the work, but I believe we can use this porcelain in the ordinary furnaces in use at the present time, such as the Land and Downie gas-furnaces and the electric oven.

Dr. Guilford.—Mr. President, I have not had any experience with porcelain inlays, but have had with glass inlays. I have placed very few in the mouth, and these were not satisfactory. I made

quite a number of demonstrations before the students, simply to show them how the matrix was shaped or formed to the cavity, how the glass was melted, and so on, but in so doing I obtained quite a little experience in regard to the preliminaries of the work.

There are some points that Dr. Darby did not touch upon. First of all, in regard to using the metal matrix, the credit for that belongs to Dr. Land, of Detroit. He had a patent on the method, and made the first real porcelain fillings that I know of that were baked. Before that inlays were cut from artificial teeth.

It was said to-night that gold is the best material for forming the matrix, but platinum can be shaped equally well and cannot be melted. A good way of forming the matrix is to get it into reasonable shape, as well as you can, without tearing it, drop some hard wax into it, and then with a warm burnisher press it in every direction. When it is removed you have a perfect mould of the cavity.

Dr. Darby.—There is no danger of gold melting.

Dr. Guilford.—I have seen it melt in making glass inlays. If gold will answer the purpose, of course, it is very well. Perhaps you will remember when Dr. Herbst was in this country, he showed us his way of preparing the cavity without undercuts, taking two modelling compound impressions of the cavity, and then with those impressions he made moulds of sand and plaster, just as we would for investing. In the one he put his tooth body, and with the blow-pipe and a little muffle fused it. Then he took it out of that one and placed it in the other, with more material, and fused it again. That same idea has been utilized by Dr. Moffitt. He does not make a platinum or gold matrix, but takes an impression of the cavity with modelling composition, and from that he makes a plaster mould, and in the plaster mould he places his body, puts it in the Custer electric oven, and fuses it. The plaster does not crack in the uniform heat. To provide for the contraction of the porcelain in cooling, he enlarges his plaster mould a little before baking the inlay. My plan of providing for the shrinkage is to give the modelling compound impression two or more coats of thick shellac varnish. This enlarges it sufficiently and evenly throughout its entire extent. By regulating the thickness of your varnish and the number of coats you will be able to get the mould just right. The specimens shown here to-night are very beautiful, and yet we know that porcelain contracts about one-fifth of its bulk, or a little less, in baking,—all porcelain does,—and if you have the thickness of

the gold to take off in addition, it would seem to make a great deal of difference between the size of the inlay and that of the cavity. In the specimens that the doctor brought from Baltimore I did not see that difference exist. I do not know how to account for it, but if we could do away with the making of the metal matrix I think it would be a great advantage. I propose trying the Jenkins body in the Custer furnace.

Dr. Inglis.—In using the platinum matrix without investment the first shrinkage of porcelain alters the shape of the matrix. It should be replaced in the cavity and reburnished. The second baking does not seem to cause any notable warpage, nor does the third. I would like to ask Dr. Deems if there is any change in the shape of the gold matrix when invested in asbestos?

Dr. Deems.—I do not think there is any change of shape, because a little asbestos is placed over the edges; but the reason the inlay fits so closely is that the gold is thin and can be burnished so much more perfectly than platinum.

Adjourned.

OTTO E. INGLIS,
Editor Academy of Stomatology.

NORTHEASTERN DENTAL ASSOCIATION.

(Continued from page 59.)

Evening Session, 7.30.

Dr. Geo. A. Maxfield (Holyoke, Mass.).—I was in hopes certain members would be here who are not, because I wanted to say a few things which I desired them to hear. I have no report to make, simply a few remarks in regard to the dental laws. Dr. Taylor, in his remarks this morning, said that if you will only spend money all the dental laws can be knocked into pieces, and he is simply a mouth-piece for hundreds of others. I cannot understand why. Did you ever think that these laws are drawn up by lawyers? Now, if you heard a body of lawyers talk about filling teeth, you would think they were "off their base." Yet we talk about laws which have been before the Legislature. Governors have examined them and submitted them to their legal advisers. It seems to me that if we consider this matter a few moments, we

can see that there is a good legal existence for these laws. Now, why is there so much opposition talk in the dental profession? One thing, a great many probably advocate these laws, thinking them an aid to the dental profession. The first law passed by the Massachusetts Legislature was vetoed by Governor North, after the promise had been given to sign the bill. His reason was that he might benefit the few,—benefit the dentists. Now, the object of the law is to benefit the public. If it benefits the public, wherein is it going to benefit the dentists? It benefits the dentists by putting a different quality of men in the dental profession.

The National Association of Dental Examiners held a meeting in Washington last week. Probably some of you were interested and remember the controversy which came up a year ago when the Association of Dental Examiners seemed to take such strong ground in demanding what the colleges should do if they were to be acknowledged. The language used was strong, and naturally raised considerable opposition in dental colleges. The intention was to bring the colleges up to a higher standard, and when you consider how a great many of the colleges are conducted, how they are run, simply for money, you can very soon see the desire upon the Examiners' part to obtain a higher standard. In their desire to get students, the colleges are not particular about whether the men are qualified, if they only pay the money. There is in Chicago a dental college which is controlled by one man, who owns all of the stock of the college. With one or two exceptions, this is a college as well equipped as any in the country. A great many students have come from that college thoroughly qualified. Now, because it is so now, is it right to say that it will always be so? The dental college should not be a means for making money. The laws for examining students are very rigid in some States.

Now, as to the meeting in Washington. We had representatives from seventeen examining boards,—Connecticut, Delaware, District of Columbia, Illinois, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, New Jersey, Rhode Island, South Carolina, Tennessee, Virginia, and Wisconsin. There were a large number who came at an expense of from one hundred to one hundred and fifty dollars. They gained no personal benefit from it. They came for the purpose of attending the meeting. The benefit would be in raising the standard of the dental profession. As we look about and see the number recently entered into the profession, and take up the papers and read the advertisements, it is dis-

couraging, making the dental profession simply a trade. But when men go to such an expense for the simple aim of elevating the profession, it shows that some men are working at a great sacrifice in order to bring a better class of men into the profession.

You know the impossibility of enacting laws which will be alike in all the States, and to have a certificate of examination in one State accepted in another will be a difficult thing to bring about. It is the plan of the Association to have all the States adopt a uniform examination and have a uniform standard in all of them. Then we will modify our laws so that a certificate of one State will be accepted in another State without an examination.

Dr. L. C. Taylor (Hartford, Conn.).—I am placed in rather an awkward position. The matter of interstate legislation is causing a growing uneasiness throughout the dental profession. An effort is being made by our commissioners to bring about a state of affairs where dentists will be allowed to register from State to State, but, so far as I have learned, they dodge just far enough so that the courts will throw it overboard the moment it is put into the field. If a man has been placed upon the list of competent practitioners by one State, and the Constitution says we must recognize the judicial acts of all the States, why is he not entitled to be a legal practitioner in all the States? Every State in the Union pledges that none of its laws shall conflict in any way with the Constitution of the United States. When the commissioners look at the law passed by the State, and see the clause which conflicts with the higher authority, they are bound to weigh the whole matter justly and honestly. You cannot discriminate after the stamp of legality has been placed upon any practitioner. I am decidedly in favor of the law, and want to retain it, but just as sure as we get a trial in the United States Court on fair constitutional grounds, that law is bound to be thrown overboard. A gentleman told me yesterday of a man who, on coming into a certain State, said that he held a diploma and intended to practise. If they wanted to call the matter before the courts, they could. He is to-day practising in that State, and no man dare touch him. The time is coming when something will be done, because it is right, and right will triumph if given sufficient time.

A Member.—Dr. Taylor says he wants the thing done. How shall it be done?

Dr. Taylor.—It is left with the board in this State to make their own regulations. It is a simple matter for them to make that

law. As it is now, it depends upon the construction put upon it. The trouble lies in the way it is construed.

Dr. C. C. Barker (Meriden, Conn.).—We are all aware of the disease; the thing is to prescribe for it. There is no doubt concerning the disease. It seems a great injustice that a man cannot go through the length and breadth of the United States and practise his profession. If a dentist is a dentist in one place, he ought to be in the whole country. We cannot legislate this thing here in the State of Connecticut. If we want the thing done, get down to some practical method. When a number of men get together they are apt to be conservative. I would like to see a resolution passed indicating the sentiment of the Association. If some one can think of some favorable method, I think it would assist us.

Dr. D. Murlless (Holyoke, Mass.).—This is a matter that interests me,—the matter of raising the standard of dentistry. In regard to the rule regulating practice, I think Dr. Taylor made a very good remark,—that a man should practise whether he was a college graduate or not, provided he was legally qualified. Any man who practised before the law was enacted is entitled to practise now.

Dr. Flanagan (Springfield, Mass.).—This reminds me of a quotation: "The fellows who revile most against religion almost never set up a religion of their own." I see no reason why each and every man in his respective State should support the dental law. Let him stand by his position. When a thing is proved a failure, let him start out with the rest. I have known men who would like to see the law tried. They knew it could be broken. When the time came, they were anxious to get on the State Board and get on the other side. Those are not the men we want on the State Board. We want those who are willing to do something for dentistry. Every one is not willing to spend one hundred or one hundred and fifty dollars, but those who do are certainly on the right track.

Dr. L. B. Palmer read a paper on "The Relation of Science to Progress in Dental Practice." (For Dr. Palmer's paper, see page 78.)

The President announced as the Committee on Interstate Law, Dr. James McManus, Dr. W. H. Ryder, Dr. N. Morgan.

Dr. C. T. Stockwell opened discussion on the paper.

DISCUSSION.

Dr. Stockwell.—I am sure that we have, all of us, listened to Dr. Palmer's paper with great interest and appreciation. Because of it, notwithstanding what may have come before it, or whatever may follow it, this year's session of our society can be pronounced a success.

In attempting to fulfil the task assigned me on the programme, I find myself regretting exceedingly that I am not better acquainted with the science with which the essayist's name is so intimately associated. For twenty-five years, or longer, Dr. Palmer's name has been a household word in our profession. But who of us has given the matter, with which he has for so long a time so earnestly dealt, the attention it deserves?

Perhaps I may ask, Who of us is able, who of us is so well qualified, to deal with it as he has done?

There must be pioneers in every branch of science, I suppose; and certainly, in this respect and along this line of observation and investigation, Dr. Palmer is, in a conspicuous sense, a pioneer. In the closing page of his paper to-night he tells us that this is probably his last contribution to the profession on this subject. The question, then, may well arise, Is it not time for the profession to inquire a little more carefully than it has done heretofore with reference to the scientific basis of Dr. Palmer's presentations?

I must agree with Dr. Palmer that results obtained from laboratory experiments are not to be accounted sufficient to upset all clinical observations made at the chair. Furthermore, I also agree with him that there is a vital difference between experiments based solely on the physical plane and experiments and observations based upon the animal plane. The point made by Dr. Palmer in this respect seems to me a very important one, and will have to be taken into consideration by those who would get at all the facts.

Most of you here know, I presume, that I had something to do with the introduction of the germ theory of dental caries. I still hold, essentially, to that theory. That is, I hold, as I did ten years ago, that micro-organisms are an *essential factor* in dental caries. That without them there would be no caries. Still, I find myself in these later years coming to the conviction that the last word has not been said relative to the etiology of dental caries. The germ theory will, in my opinion, stand, as far as it goes. But it needs to be *supplemented* by other forces or energies not yet, per-

haps, fully understood. Dr. Black has, for three or four years past, been working along certain lines now familiar to all. Dr. Palmer, for a score or more of years, has been prosecuting laborious and persistent scientific study along another line. In their conclusions they seem to differ somewhat materially. But I am led to ask myself if the difference is not more seeming than real. Dr. Black holds that a tooth's *liability* to decay does not lie in its *physical constitution*, but in its *environment*. In this environment Dr. Black's chief attention is fixed upon his plaques of microbes and the acids which they produce. I do not understand that Dr. Palmer denies the existence of these microbes and their consequent acids. Now, why may not the electric conditions which Dr. Palmer contends for constitute an essential and vital part of the environment which Dr. Black holds as solely responsible for dental caries? I do not see really, I frankly confess, why a so-called "soft" or "hard" tooth should not be acted upon with equal readiness by the "solvent of its lime-salts, an acid elaborated by micro-organisms." Its physical structure, alone and simply, should not, it seems to me, make any difference in regard to its susceptibility to the action of acids held against it by the presence of the mass on plaques which Drs. Black and Williams seem to have demonstrated. So, while it appears to me that Dr. Black's main contentions are likely to stand the test of further investigations,—I mean in so far as the physical structure of teeth is concerned,—I cannot accept his conclusions when he says, "With our *present knowledge*, the *only basis* for the selection and adaptation of filling-materials to classes of cases is the individual operator's judgment as to which *he* can so manipulate as to make the most perfect filling, considering the circumstances, his own skill, and durability of materials."

If this statement is to be accepted as final, then, as Dr. Palmer has stated, there is no science in filling teeth. There is a good deal more involved in the successful filling of teeth than the mere mechanical adaptation of materials used. The judgment and clinical experience of every thoughtful dentist of ten years' experience must, it seems to me, convince him of the truth of this statement.

Dr. Palmer's theory, as expounded here to-night, relates chiefly, if not entirely, to the recurrence of decay about gold fillings made in the teeth of young people. And here, it seems to me, he is thoroughly scientific. He is dealing with a factor—the electric conditions of the oral cavity—which some time in the future the

profession will understand. For the last decade the world has been, in a practical way, entering a stage that is appropriately called an electric age. To my mind we are as yet in its infancy. Dr. Palmer is one of the pioneers—perhaps, I should say, *the* pioneer—in the study of the science of electricity as applied to dentistry. And I will confess to being no prophet if the day does not come when the profession does not recognize the fact that they owe to Dr. Palmer a great debt of gratitude.

I am not disposed to discuss the paper to any great extent. In fact, there seems to me little room for discussion. I can only urge every one of you to read and reread it very carefully when it shall appear in print. It will bear it. It is worthy of it. I say this very frankly and very gladly. I consider it a magnificent presentation of the relations of science to the progress of dentistry. It is entirely scientific in its matter and method, eminently professional, and profoundly ethical in its spirit and temper. And if, as intimated in his closing remarks, this is, indeed, to be his last utterance on this subject, it is in every way the fitting word, and one also that may well constitute an appropriate memorial of a work for humanity, which has absorbed his attention and been the devotion of his life for at least the last twenty years. And more than this, I am sure that I but voice the feeling of the members of the Northeastern Dental Association when I say that they esteem it a special honor and privilege to be the vehicle by which Dr. Palmer contributes this last word on this subject to the dental world.

Just a thought, in closing, on an allied subject. Dr. Palmer has spoken to us on the relations of science to the progress of dentistry. I have been impressed this evening as seldom, if ever, before with the thought of the relations of scientific men to the progress of dentistry. I refer now, specifically, to a class of men belonging to our own profession, men who are, in the truest sense, scientific, men whom any special branch of science would be proud to own and acknowledge. Their methods are scientific, their work is exact, profound, unselfish, and strictly devoted to the acquisition of the truth. The bald heads and gray beards of this audience, by letting their minds revert to the past twenty-five, thirty, or forty years, will recall the names of a few such men. I need not attempt their enumeration. Suffice it to say that they constitute a class of whom the essayist, this evening, is a conspicuous and illustrious example and type. Real scientific men are modest, unassuming,

unpretentious. They do not make a great noise in the world,—quite unlike a larger class who vainly attempt to seize the livery of science in order to ride easily into prominence and temporary popularity. Of such men I am not now speaking. I refer only to those who are content to be martyrs, if need be, rather than to seek to be on the popular side of things and to go with the currents which make for commercial ends and personal aggrandizement. I am thinking now of men who are content to work unceasingly, to plod on in their quiet way, studying, observing, experimenting, and re-experimenting with a patience and a perseverance, year after year, that is wholly sublime, if not actually divine. And for what? Is it with and for a purpose that can be measured by the money standard, or anything that is implied by such a standard, such as houses and land, the ease and comforts and gratifications of a luxurious life? No; none of these things constitute the animating, moving purpose of these men's lives. But, rather, they burn the midnight oil, they toil, they spend lavishly from all their resources, in order that some law may be discovered, some fact may be demonstrated, which may lead to a truth or truths that shall be helpful in their own work and of advantage to their fellow-men.

I know of but one thing in the world that is better than science, and that is service. If any one chooses to ask me if religion is not the one thing better than science, my reply would be to ask such a one if service is not religion?

I have said, and said truly, that Dr. Palmer embodies, in his own being, this scientific spirit. He also, as his long life has shown, embodies the spirit of service. Who of us, having been in the practice of dentistry for the last quarter of a century, has not felt the tentacles of his searching but helpful spirit?

Some wise philosopher has said that "we have only that which we have given." Regardless of the fact of any other world than this, I believe that, in the deepest sense and perception of things, the philosopher is right. So believing, I congratulate Dr. Palmer and all like scientific men upon their great store of personal wealth,—wealth, not riches,—and acknowledge with the deepest gratitude my obligations to them.

I have been moved to say these things because we as a profession are too apt to be grossly unmindful of our obligations to such men as Dr. Palmer. We are too apt to forget that it is because of such men and their unselfish work that we possess any claim to be considered a profession at all. They have labored, and they labor

unceasingly; and we, the great mass of the profession, receive, too often forgetful of the great debt we owe them, freely of the results of their labor.

Let us, then, on this auspicious occasion, at least make our guest feel we *can* be, and *are*, grateful for his earnest, scientific, and long-continued work in behalf of truth, the results of which he has so freely given to whomsoever hath an ear or an eye for knowledge.

Dr. S. S. Stowell, of Pittsfield, Mass., then read the following short practical paper.

(To be continued.)

Editorial.

PRACTICAL RESULTS OF HIGHER EDUCATION.

THE problems in education will never, apparently, cease to be a source of anxiety to those engaged in training young men for service in the world. The effort to prove that the thoroughly educated man is the best man for all business and other relations has been continuous for years, while the opposite view is stoutly maintained that a theoretical education will disqualify for practical service in proportion to its extent and thoroughness.

That there is much truth on both sides of this much mooted question must be admitted. The thorough mechanic may be developed from the man who has devoted his years to the study of the classics, while it is possible to make a learned man from the blacksmith at the forge, a fact frequently demonstrated. The result depends entirely upon the taste of the individual. The scholar may be a mechanic by inclination and habit of thought. Once started in this direction, he will not only make a good mechanic, but will broaden the entire work through the intelligence acquired in other directions. This is equally true of the mechanic. The surgeon may be learned in medical science, but inability to use the instruments required results badly. It is frequently painful to witness the attempt to perform an operation by one who has never acquired skill in this direction.

While it is true, on both sides of the argument, that here and there exceptional cases pass over the border-land into the domain of the other, it yet remains a fact that the higher the training

the lower the mechanical ability. This apparent paradoxical condition of things will, probably, not be admitted by those who have to deal with dental education, but it has become a serious fact in dental teaching.

The cry for years has been for a higher standard. Dentists of the present and future must possess not only a preliminary education of a very high grade, but they must during the college term be trained in all the collateral branches supposed to be of special value to the medically educated student. This has grown year by year until the dental student has been loaded down with an amount of scientific training that absorbs nearly all the three years devoted to the study of dentistry. It is plain that he cannot accomplish two extremes, and, as usually happens, he drops somewhere between, being neither a dentist nor a mechanic.

The writer has been impressed with the fact for years that dentistry, upon its practical side, has been languishing through higher training. The dentists of to-day are not, as a rule, equal as operators or mechanics to those who graduated when two years was the maximum limit of school work, while they are measurably superior in all that appertains to higher scientific culture.

The work of filling teeth is not by the majority as dexterously performed as it was twenty years ago. Then good operators were the rule, now they are the exception. Forty years ago dentists were expected to be able to manufacture metal plates with the skill of the jeweller. Now both operator and plate-worker are, to a great degree, lost in the higher training; and unless measures be taken to effect an equilibrium between the theoretical and practical, it will not be a generation before the good name of American dentist will be measurably lost in both branches.

Is there any remedy for this state of things? Can the practical and the most important part of dental training be conserved and the other, the cultured, be maintained and possibly increased?

It must be apparent to all dental educators that a remedy for this must be found, and that speedily. The students of our best dental colleges are overworked mentally and physically. The curriculum is crowded with subjects. The—so-called—technic training absorbs altogether too much time in the freshman year. A limited amount of this is essential, but the student, at the earliest period, should be placed at the threshold of his serious work in life, upon the living subject.

The Technic Association recently met in Cincinnati and spent

two days discussing these preliminary problems. While this may be well, and the time and money expended not lost, yet it does seem to the writer that there is altogether too much of this kind of work required in the schools.

If this technical work is to be continued and extended, then we may look forward, not to a four years' course, but to a five or even six. There must be a limit found somewhere to this overloading.

The work, as now performed, would, probably, not be a serious drawback to acquirement of skill were it properly systematized, but this cannot be done in dental schools as now managed, for the teaching there is not done by men trained for the special purpose of teaching, but by persons taken from the ranks of practitioners, whose livelihood is dependent, not on the emoluments derived from teaching, but from practice. This divided loyalty produces the legitimate result,—imperfect work in the, to them, least important duty.

There is another point worthy the earnest consideration of dental educators. Many of the dental colleges have selected for the most responsible position, that of Dean, a practitioner of medicine. However worthy and skilful in his own line of work, he is not fitted, by training or inclination, for that duty. The result is a lamentable weakness everywhere. This selection is in direct opposition to all experience. The large mechanical establishments would treat with ridicule the proposition made to place at the head of any one of these, as general manager, a man trained in law, theology, or medicine, yet this is exactly what is being done in many of our dental colleges. A dental college is a large manufacturing establishment, and to conduct it rightly it must be managed by men trained in that direction and upon strict business principles, or it will be a failure.

Is there any remedy for the condition that confronts dental educators to-day? The answer to this must be found somewhere and somehow. In the opinion of the writer the solution of the problem must be in an entire reorganization of methods.

Pedagogy is a recognized science, and must be applied here as elsewhere. There is a class of mind in every circle that tends in certain directions. It is this variety of intellect that gives force to all the occupations of life. Some will incline to mechanics, others to the purely professional, some find pleasure in teaching. In dental training the latter are indispensable, but as affairs are at present managed these are practically lost.

The first duty of those engaged in dental education would seem to be to select young men exhibiting this talent, and train them for the work. Place them first in subordinate positions, and as they show ability in imparting knowledge make their positions permanent at a continually increasing salary, so that all temptation to practise may be eliminated. In other words, make the position one of life interest, as in other important occupations.

Then systematize the whole method of teaching. Give the student elementary technics, but as early as possible place him on the living subject. Utilize every hour in the day, that no time be lost. Do away with all useless modelling in clay, or carving in other material, making drawings of teeth on paper, or measuring angles of excavators and pluggers, and, in the place of these time-wasteful methods, add on the higher branches, and extend these to the fullest extent compatible with time and the strength of the student. Make the course four years of nine months each of continuous labor.

It may be said that this is a Utopian idea and can never be carried out. It is to the writer a very simple problem. It will, of course, mean the destruction of many dental colleges, for it is understood that there are many schools in small places that would find it impossible to meet these demands, but, on the other hand, there are colleges now established that could do this and could well afford to make the experiment. The question must be met, for the schools at present are drifting along with haphazard methods that were sufficient for the requirements of the past, but are wholly unsuited to this age, when the demand is for cultivated minds combined with manual dexterity.

Dentistry needs all the intelligence that it is possible to acquire, and it would be folly to eradicate the higher mental development, as it would be equally disastrous to eliminate practical skill. Both must go together, and that college will serve the profession best that can demonstrate the way in which both can be conserved to the advantage of dentistry and to the benefit of humanity.

A LIBELLOUS LETTER.

THE following quotation is taken from the December number of the *Dental Review*. It is not often that this journal is called upon to notice the anonymous attacks appearing in other journals, but this, pretending to emanate from one of the household, should receive attention, if for no other reason than to denounce it as an infamous calumny.

"As a looker-on, though not entitled to a vote, at the late meeting of the Dental Faculties Association in Omaha, the undersigned was impressed with the thought that surely the truly good must seek other spheres than this before perfection is attained. Here are the chiefs of dental education, assembled in council of war: they discuss the physical and mental caliber of the expected new recruit, the ignorant student, as though he were the only enemy involved in the coming scrimmage. . . .

"As things are now, when a college is admitted to membership,—and almost any new 'old thing' can be so admitted,—it at once becomes the peer of the best in the general estimation of the profession and State boards. It 'complies with all the rules aforesaid' in its catalogue, and then does pretty much as it pleases, knowing that the mere official cloak of membership in the Association can cover many sins of skullduggery. And thus—'Oh, the pity of it, Iago'—the College Faculties Association is used as the responsible protector, the cat's-paw of what otherwise would be, on its own merits, a disreputable institution."

It is more than probable that the foregoing was written by one not entitled to be present at the meeting of the National Association of Dental Faculties, for it is inconceivable that any member of a faculty would stoop to lower this body in the estimation of the dental profession. It was doubtless prepared by an outsider with malice aforethought, in hopes that his baseless charges would have some effect in prejudicing those not familiar with the work of this organization, and thus destroy its valuable moral influence in elevating dental education in this country.

It is needless to say that the statement that the members spent their time in discussing "the physical and mental caliber of the expected raw recruit" is false, and no one knew this better than the author of this wretched screed.

The Association of Dental Faculties was organized for the purpose of eradicating the evils entailed by loose methods of training, and in order to accomplish this time was required to perfect certain measures. The difficulties to be surmounted in accomplishing this can only be appreciated by those intimately connected with

the work. That much has been done and more yet to be accomplished requires no statement or argument. The proof of the first lies in the fact that through its labors dental education in the United States to-day occupies a position quite equal, if not superior, to that of any other portion of the world. The Association of Dental Faculties has been in existence fourteen years. At the time of its organization students were being graduated under what was known as the "five-year rule," which meant, practically, one session. The requirement of two full years was the first work of this body, and from the time this was passed to the present hour it has steadily advanced its requirements.

The insinuation of this correspondent, that colleges do not live up to the requirements, is quite in line with the tone of his letter and equally devoid of truth. The editor of this journal has had better opportunities of familiarizing himself with the dental colleges of the United States than many, even of the members of the Association, and while there may be a few secret violators of its rules, as there are dishonest members of all communities, these must be exceedingly rare, and when the attempt is made, it is almost certain of discovery, and this means a risk that few care to take. In the earlier period of this organization one college conceived the idea that it could be a law unto itself, and disregard all rules. The result was, the school was expelled at once, with a subsequent financial loss so heavy that it was forced to reorganize and humbly beg for readmission.

The Association of Dental Faculties means all it says in the resolutions adopted, and every college must live up to these or suffer the consequences. This was plainly apparent at the Omaha meeting, but the correspondent probably overlooked it, or to his mind it was not important. A prominent college was reported as not having had anatomy taught by dissection of the cadaver, and it was recommended that it be suspended. A vigorous effort was made to save the college, for it was thought it labored under special difficulties, but all that could be obtained was a respite for a few months. If the rule of the Association was not then complied with, the college was to be cast out of the fold.

If the writer of the letter in the *Dental Review* has any complaints to make, the proper plan is to bring them before the committee appointed for this purpose, with all the details of violations of rules, and he can be assured that, whether high or low, the faculty offending will be called to an accounting.

It is time that the moral sense of the editors of journals should be above publishing such scurrilous letters. There is too much of this in several of the dental periodicals, and they frequently step over the border-line of the law of libel. While associations cannot be protected always by legal statutes, they, at least, are entitled to respect, and the editor who admits an article calculated to lessen the influence of a worthy organization merits and should receive severest condemnation.

Bibliography.

L'ART DENTAIRE EN MEDECINE LEGALE. By Dr. Oscar Amoëdo, Professor l'Ecole Odontotechnique de Paris. Masson et Cie, Paris, 1898.

The writer of this book states in his preface that he had for a long time been impressed with the close and important relations, legal and otherwise, existing between the professions of dentistry and medicine. After a careful study of the subject, and an exhaustive examination of the various works bearing upon it, he was impressed that writers upon medical jurisprudence had neglected to utilize the valuable contributions relating to it furnished by dental practitioners. With a view to remedy this, he had, during his sixteen years of continuous dental practice, collected many items of information from his own experience and the writings of others, intending at some time to embody them in a suitable presentation of this important question, when a disastrous catastrophe confirmed the importance of his undertaking.

The fire at the Bazar de la Charité, May 4, 1897, brought into prominence the important services rendered by members of the dental profession in identifying its unfortunate victims, and led him to at once make known his studies upon the subject in a communication to the last International Medical Congress at Moscow, and to the Dental Congress at Paris. The importance of the subject demanded more than this. He therefore made a further study of the subject, a more thorough research, and a more extended use of the material at command. The information thus gained is embodied in the work in question.

He first treats upon the nomenclature of dental anatomy, following closely the suggestion of Dr. Black in his report on this subject to the Columbian Dental Congress. This is followed by dental anatomy, general and descriptive; dental anomalies; facial peculiarities of the human teeth, and peculiarities of the jaws and teeth of idiots, prostitutes, criminals, dwarfs, and other degenerates.

He then considers the various conditions, normal or abnormal, general or local, having a more or less direct bearing upon the teeth, and the various disorders caused or aggravated by the position or condition of the dental organs. Dental caries, erosion, the effects of various occupations upon the teeth; fractures and luxations of the teeth, and the medico-legal questions which may arise therefrom; bites or wounds made with the teeth in general, those made by man or by animals, and the liability of thereby transmitting diseases; the wear of the teeth, and the teeth after death, are each in turn duly considered, not only as these several conditions are presented to and concern the dentist, but also as they may and do at times assume a legal importance.

Under the heading, "The Dentist as an Expert," he treats of dental jurisprudence in five sections,—1, the dentist as an expert; 2, accidents due to extraction; 3, anæsthetics, general and local, in dental surgery; 4, infections communicated by the dentist; 5, identification of the dead by the expert dentist.

He devotes considerable space to the dental evidence submitted in identifying the unfortunate victims of the charity bazar, to dental notation, and the care to be observed in recording dental operations, so that when called upon to identify the living or the dead the dentist may be able to give unimpeachable testimony.

The volume closes with a very full and instructive bibliography of each subject considered. As a help to future students this will prove useful and instructive. In a few instances, however, the names are misspelled, or the initials in part omitted.

In treating each subject the author has endeavored to give the dento-medical, or dento-legal, rather than the purely legal or purely dental aspect, and this constitutes the real value of the book. In this it is unique. The author well merits the thanks of the profession for his patient and thorough research. He has not only given them a useful book, but has made the path easier for those who may follow the same line of study.

W. H. T.

Domestic Correspondence.

A REPLY TO DR. TALBOT.

TO THE EDITOR:

SIR,— In the INTERNATIONAL DENTAL JOURNAL for October, 1898, appears an article under the head of "Double Resection of the Lower Maxilla," by Dr. Eugene S. Talbot, questioning the priority and criticising the technique of this operation as published by Dr. Edward H. Angle in the *Dental Cosmos* for August, 1898.

He says, "The late Dr. W. W. Allport, who suggested this operation over four decades ago, consulted the late Dr. Brainard, of Chicago, admittedly then one of the most skilful American surgeons, in regard to its propriety." As the late Dr. Allport was a man who contributed liberally to the literature of his profession, it is only in justice to him that the chapter and paragraph be given in which he refers to this operation. As modern men of science claim and are credited with priority from date of publication, it seems to savor of degeneracy to make claims on hearsay evidence of forty years ago. Through the pursuance of such childish methods worthy men are cheated of their reward and the seekers after truth unable to give credit where it is justly due. Further, it is surprising that Dr. Talbot should be willing to stake his reputation by assuming to diagnose and suggest treatment for cases which he has never seen. He remarks that in the operation as suggested by Dr. Allport the section was to be "cut in such a manner as to bring the incisors directly in contact with the superior incisors, and not throw the anterior part of the jaw downward, as would be the case in Dr. Angle's operation."

When we consider that in this particular case the inferior incisors projected to a point well above the labio-gingival margin of the superior incisors, it would seem that even a school-boy's conception of the most simple laws of mechanics would indicate that wedge-shaped pieces of bone must be removed. Dr. Talbot finally closes his article with one of those sweeping and dogmatic statements, so well known to all who are familiar with his writings and always resorted to in his efforts to convince and impress in the absence of facts or accurate data. He says, "The deformity is the

result of arrest of development of the face and superior maxilla rather than an excessive development of the lower jaw." As Dr. Talbot has stood on a street corner of London and in an hour or so measured the faces of twenty thousand people, it is only reasonable to suppose that he unquestionably possesses the ability to note deviations from the normal facial line. But it would seem that in this case, where the superior maxilla was well up to the average in size and contains a full complement of large, well-developed teeth symmetrically arranged, that it would present a good argument in favor of the excessive development of the inferior maxilla, which is further borne out by the fact that in this case the lower maxilla *was* enormously over-developed, and would be easily detected from the engravings even by a freshman student.

A theory sometimes blinds the man who holds it, and not only hinders his own progress, but makes him a stumbling-block for others. "The difference between a horse and a hobby," said the lunatic, "is that one can get off a horse." Lovers of science are men of broad vision and generous enough to give honor where honor is due, and too devoted to their art to hinder its progress in the least degree.

When conservatism and opinionism have developed into bigotry, a man will be found too dull to see the truth and too narrow to acknowledge it.

Yours respectfully,

C. DEW. LUKENS.

ST. LOUIS, MO.

[The foregoing letter is published at the request of the writer, and with the hope that the fact of priority may be established. The spirit in which this reply is evidently written is not to be commended, as it tends to defeat its own object.—ED.]

Notes and Comments.¹

BUR-EXCAVATION.—Some one has said that if the bur is repeatedly dipped in oil of cloves while excavating, the pain will be much lessened. Such things are often said, and go unheeded because they are so simple, while many a time the simplest truths are the greatest truths. However, if there is any merit in the above, it is because of the lubrication of the bur, thereby lessening the friction, which lessens the heat that constant burring causes.—*Dental Weekly*.

EXTRAORDINARY RESULTS.—The *Indiana Dental Journal* says that at a recent meeting of the Odontological Society of Indianapolis, Dr. Merit Wells reported a case where a child less than two years of age, while swinging a bottle up and down, struck one of the deciduous central incisors with such force that it was driven into the alveolar process so that the crown was almost totally obscured. He supposed that the accident would result in the loss of the deciduous tooth, and probably in death of the permanent tooth-germ. Strange to say, the deciduous tooth gradually regained its normal position with the pulp living, and the permanent central is now fully developed and in position.

DELICACY IN OPERATING.—In writing upon this subject the editor of the *Practitioner* says if there be any one thing which a dentist should cultivate, it is delicacy and lightness of touch. Some dentists whom we have known go at their work like a miner with a pick-axe. They are rough, harsh, and their hand, whether with the excavator, the plugger, or engaged in adjusting the various appliances of our art, is ever heavy. Their arms always rest burdensomely upon the patient's head. Their finger-nails are continually digging into tender tissues, and there is a coarseness and clumsiness about their operations that marks an unpardonable heedlessness of the comfort of the patient. There are few things

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

which so forcibly commend an operator to those under his care as tenderness, and even daintiness, in regard to their sensibilities. The engine-bur should be directed as if it were a sentient thing, and napkins should be used as though they were a spontaneous production.

A METHOD OF REPAIRING A BROKEN FACING.—In a paper read before the Northeastern Dental Association, Dr. George F. Harwood offered the following as his method of repairing broken facings in bridge-work: First drill through the backing for the pins of the new facing, cutting out the gold between, countersinking the backing on the palatal surface, forcing the pins apart and into the countersink by a pair of curved pliers, one jaw of which is fitted with a swivelled socket to receive a pellet of lead or shot to protect the facing, the other having a grooved and swivelled socket, wedge-shaped, to force the pins apart and into the countersink, while that part between the pins may be filled with a fine alloy from which the excess of mercury has been carefully expressed.

A PROCESS FOR NICKEL PLATING.—The following process for nickel plating is given in the *American Druggist*: Boil in a copper vessel a saturated solution of zinc chloride and an equal quantity of water. While boiling add hydrochloric acid, drop by drop, until the precipitate at first thrown down is redissolved. Now add zinc in powder, until the bottom of the kettle is nearly covered with a precipitate of zinc. The bath is now ready for the addition of a salt of nickel, and you may use either the sulphate or the nitrate. Add it in sufficient quantity to give the bath a strong green color. The articles to be nickelled are now hung in the bath by means of a zinc wire, or a strip of sheet zinc, and a few pieces of the latter are thrown in along with them. Raise the heat to a strong boil and continue it for several minutes, or until the articles are covered with a bright coating of nickel. The articles should be thoroughly cleaned and free from grease before being put in the bath.

BORAX SOLUTION FOR SOLDERING.—Dr. J. T. Usher gives his method of making a solution in the *Dental Cosmos*. He says, "In soldering gold crowns I use a saturated aqueous solution of borax, made by filling a bottle with water and dropping into it a lump of borax. This is allowed to boil on top of my vulcanizer or else-

where, and the water will take up a certain amount of the borax, leaving the residue undissolved. An ounce of this solution will last a busy man about a year. In using it the piece to be soldered is simply moistened where the solder is wanted to flow, and the solder will run like a flash, much easier than when the borax powder is used."

Current News.

SOUTHERN BRANCH OF THE NATIONAL DENTAL ASSOCIATION.

THE Southern Branch of the National Dental Association, by invitation of the Louisiana State Dental Society, will hold its second annual meeting in New Orleans, La., February 9, 10, 11, and 13, 1899. The following day is Mardi Gras. Circulars will be issued later giving details as to railroad and hotel rates, etc. All members of the National Dental Association and the American Medical Association are cordially invited as guests of the Southern Branch.

The following is a list of hotels and boarding houses the visiting members of the Southern Branch of the National Dental Association may find convenient and desirable while attending the meeting. It will be necessary to notify proprietors at least ten days in advance to secure good rooms.

HOTELS.

St. Charles Hotel, American plan, \$4.00 per day and up according to location of room. European plan, \$2.50 and upward.

Hotel Royal (French quarter), American or European plan, \$2.50 to \$4.00 per day, according to location of room.

Cosmopolitan Hotel, European plan, from \$1.50 upward.

Antoine's Hotel (French), 713-717 St. Louis Street, \$2.00 and \$3.00.

Hotel Denechaud, American or European plan, from \$2.00 to \$3.50 per day.

Metropole Hotel, American plan, \$2.00 per day.

ROOMS.

Fabacher's Hotel, fifty cents to \$1.00 per day.

Penn's Hotel, fifty cents to \$1.00 per day.

Commercial Hotel, \$1.00 to \$2.00 per day.

Metropole Hotel, fifty cents to \$1.00 per day.

Rooms (French), 235, 237, 239 Bourbon Street, from \$1.00 to \$3.00.

PRIVATE FAMILIES.

Mrs. Hawzw, 1350 Magazine Street, rooms with board, \$1.00 to \$2.00 per day; special rates by the week or month.

Mrs. Joseph B. Davis, 1710 Prytania Street.

Mrs. C. R. Van Wick, 1819 Annunciation Street.

Miss Lulu Bailey, 846 Camp Street.

Any information concerning the above will be cheerfully furnished by the chairman of the Hotels and Quarters Committee, Dr. J. Rollo Knapp, 620 Canal Street, New Orleans, La., or by Dr. Wallace Wood, Jr., 625 Canal Street, New Orleans, La., the secretary of the Executive Committee of the Louisiana State Dental Society.

WILLIAM ERNEST WALKER,

President Southern Branch National Dental Association.

ODONTOLOGICAL SOCIETY OF ROCKFORD, ILL.

THE following is the programme for 1898-99 of the Odontological Society of Rockford, Ill., organized November 19, 1897.

December 16, Dr. J. L. Palmer, "Care of Children's Teeth." Discussion to be opened by Dr. E. S. Tebbetts and Dr. C. B. Helm.

January 20, Dr. J. E. Harned, "Anæsthetics and their Use in Dentistry." Discussion to be opened by Dr. H. C. Gill and Dr. M. A. Banks.

February 17, Dr. A. M. Harrison, "A Dentist's Record and Account Books." Discussion to be opened by Dr. C. J. Sowle and Dr. M. R. Harned.

March 17, Dr. C. B. Helm, "The Border-Line between Crowns and Fillings." Discussion to be opened by Dr. C. A. Kitchen and Dr. E. H. Allen.

April 21, Dr. J. J. Reed, "Habits and Conditions of the

Mouth." Discussion to be opened by Dr. B. F. Ells and Dr. A. M. Harrison.

May 19, Dr. E. S. Tebbetts, "Making Dental Instruments." Discussion to be opened by Dr. J. L. Palmer and Dr. J. J. Reed.

June 16, Dr. M. A. Banks, "Sulphuric Acid in the Treatment of Pulpless Teeth." Discussion to be opened by Dr. F. C. Gill and Dr. J. E. Harned.

October 20, Dr. E. H. Allen, "Comparison of Filling-Materials." Discussion to be opened by Dr. Bryant Kerr and Dr. M. L. Hanaford.

November 17, Dr. C. A. Kitchen, "President's Résumé of the Year's Work." Discussion general.

DR. C. A. KITCHEN, *President*.

DR. C. B. HELM, *Secretary*.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

THE annual meeting of The New York Institute of Stomatology was held Tuesday evening, December 6, 1898. The following officers were elected for the year 1899:

President, E. A. Bogue; Vice-President, C. A. Woodward; Recording Secretary, F. Milton Smith; Corresponding Secretary, George A. Wilson; Treasurer, J. A. Bishop; Editor, Frederick L. Bogue; Curator, J. G. Palmer.

Executive Committee.—Charles O. Kimball, chairman, S. E. Davenport, J. Morgan Howe.

OHIO STATE DENTAL SOCIETY.

THE officers of the Ohio State Dental Society for 1899 are as follows:

President, L. P. Bethel, Kent; First Vice-President, L. L. Barber, Toledo; Second Vice-President, H. F. Harvey, Cleveland; Secretary, S. D. Ruggles, Portsmouth; Treasurer, C. I. Keely, Hamilton.

Yours truly,

S. D. RUGGLES,
Secretary.

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Original Communications.¹

THE MERIAM EXTENSION CROWN.²

BY DR. HORATIO C. MERIAM, SALEM, MASS.

SOME years since, I wished to insert a first superior bicuspid without a plate, but objected to cutting into the second bicuspid or the cuspid. I neither wished for the display of gold that would come from banding these teeth, nor did I think well of bands or pins built into teeth that were to be subject to strain in mastication. A new device seemed to be called for, and my plan resulted in the method that I am now to report.

The first molar had been lost and the teeth had separated; the root of the first bicuspid was in place, but was decayed very much and so far up in the alveolus that crowning was impossible. I wished to arrange for sightliness, cleanliness, stability, and utility, together with ease of repair, if need be, and yet to avoid injuring, marring, or trimming the other teeth.

You will recall that the second superior molar often tapers slightly, being a little larger at the neck than at the crown, and

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

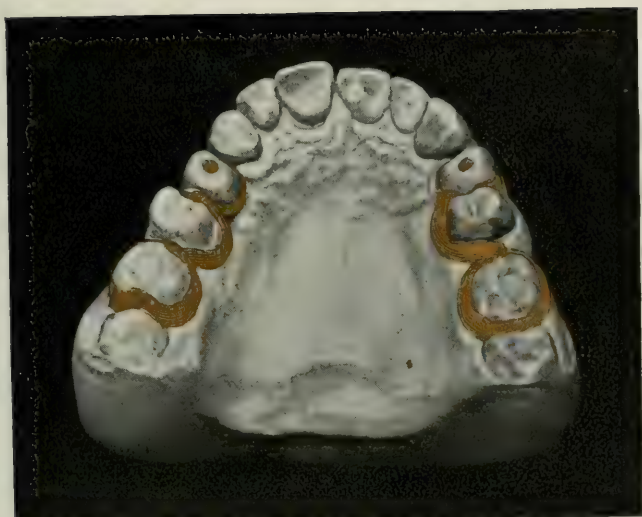
² Read before the American Academy of Dental Science, October 5, 1898.

so will allow a band to be fitted and forced up tightly without trimming. This tooth was banded, the band being made extra thick on the buccal surface, so that it could be cut narrow and show a portion of this surface of the tooth. The remaining portion of the root of the bicuspid was cleaned and filled with gutta-percha, and a small oval cup of heavy plate was made to fit against it, opening downward. An English tube-tooth was selected, ground to place, and then banded, the band being left wide on the palatal surface. This band was fitted and soldered to the cup, which was then drilled through, corresponding to the hole in the tube-tooth. A platinum-iridium post was soldered in place. This post was long enough to come nearly through the tooth, and was slotted to retain a gold filling (which was inserted after finally setting the tooth in the cap with gutta-percha). The cap was connected with the band on the molar by a strong bar of spring gold wire, No. 16 or 17, or larger, English standard gauge, curved around the bicuspid, leaving it free and clean. An impression was taken with the molar band in place; the cast was then made with powdered pumice mixed in the plaster, the cap and the bar were placed in position, and the piece was then invested and soldered together. In subsequent cases I have either bent up the bar a little where it touched the cap, or have let it run under the cap a little where the alveolus has been absorbed; or, if there was room, have let it pass along the distal surface of the cap. After soldering I have cut the cap away on the labial surface to a mere line, leaving it wide on the palatal and distal surfaces. The cap may be cut narrow or left full width on the mesial surface, the cutting being governed by the amount of gold in view. The tooth is then put in place with gutta-percha or cement, the gold filling inserted and polished, and the piece set in place. The case here, that shows two of these crowns *in situ*, will make it clear to you all.

I have described the one resting against the root. The other, you notice, shows a slight absorption of the alveolus.

You will recall that the law requires (I quote from memory) that a new device shall be accompanied by "such a description as will enable one skilled in the art to which it appertains to make a duplicate." I feel that gentlemen of the standing of the Fellows of the Academy will have no trouble in exceeding the little skill I have in designing and making what I have shown and here present. (See illustration.)

I wish to call attention to one point,—viz., that a tooth with a



band secured to a tooth beyond those standing beside the vacant space has the advantage that the tooth is less likely to be tipped, having the full support of the alveolus, and that the alveolus is less likely to be absorbed.

EXTRA TOUGH GOLD SOLDER.

It is desirable to avoid uncertain formulæ in the making of plate or solder. We used to see formulæ that called for the addition of a certain proportion of brass wire or brass pins. Now, brass and brass wire vary, and we can work best if we start with each metal pure and distinct. A very small portion of some metals will make gold intractable. I remember that I once took some gold—old fillings—to be made into pure gold wire, and my man complained that it worked “short.” The action of metals in contact in a state of fine division is an interesting one, but too long for this report; but when we learn that one part of tin in a thousand will make gold too brittle to work, we can understand the importance of what I allude to. We use tin constantly in filling, either by itself or in combination with gold, and I think that none of us would overlook this source of danger in making plate or solder, but I think we have not thought of the tin in amalgam; a very small part, even that in an amalgam repair of a gold filling, might ruin the working of plate or solder. I direct my maker to treat all my gold with corrosive sublimate for the removal of tin. The pennyweight is taken as a starting-point and divided into this formula:

	Gold.	Silver.	Copper.	Zinc.
Plate	18 gr	5 gr.	1 gr.	0 = 24 gr.
Solder	18 gr.	3½ gr.	1 gr.	2 gr. = 24½ gr.

You see by this that a portion of the silver is withheld and zinc added to make the melting-point of the solder lower than that of the plate, and that there can be but slight difference in color between them. The slight quantity of copper helps to toughen the solder, and deepens the color of the plate; a lighter-colored plate and a very free flowing solder are made by omitting the copper and adding an equal amount of silver. But the underlying rule of pure metals, and lowering the melting-point of the solder by withholding part of one metal and adding an equal part of another of the same color but of a low melting-point, such as zinc, will allow us to make a plate and solder of any carat that will work well together. You perhaps noticed that the parts given for the

solder foot up twenty-four and one-half grains: an excess of zinc is added to allow for loss in melting and in soldering.

In the work that I show you the bands are made of this plate, reinforced and soldered with solder made by this formula. One side is not polished, and you can see where the solder has flowed; the polished side shows the colors of the plate and solder and the excellence of the match. You will notice the pieces of plate and solder that are now being passed around, and can judge of the color and test the toughness of the solder. You will see that the solder is rolled very thin. I like this for convenience in use and that it cannot be mistaken for plate in the office. I have twenty pennyweights made up at a time, and if of the same thickness they might get mixed.

ANNEALING STEEL.

Man has worked steel from very early times. As boys we were told stories of wonderful blades, the secret of whose making perhaps died with the makers. The blades of some of these old makers are now highly prized by those who make collections.

We have been accustomed to think of steel depending for its quality on its tempering, and by tempering I mean heating to redness, hardening, and then drawing the temper to that desired, either for cutting, springs, or other purposes; but piano wire shows us that a certain quality of steel is produced by drawing, so that it is practically fibrous. The sword-maker's skill was shown in the forging, and he often worked the blade while cold until he got the right temper into it. Jewellers make a small drill, without heat, from pivot wire (piano wire) by flattening it slightly on an anvil, but they do not turn it and strike the sides, for that would break the arrangement of the fibres and cause the drill to split. Many flat instruments can be made in this way if the forging is confined to the side.

Steel for the ordinary instrument is completely annealed in a charcoal fire, and is not brought to the air until the fire has burnt down and the steel is completely cold, thus avoiding even the slight hardening of the surface that might come from contact with the cool air, and giving a uniform annealing. Hardening and annealing are now believed to represent different arrangements of the molecules. This point is not very clear: the supposition remains that the chemical composition is unchanged.

These general facts help us to understand some of our failures in working steel. In drawing the temper of an instrument in a

gas flame or a fire and bringing it to the air we get a partial cooling of its surface, so that it is not homogeneous and is unlike the steel annealed in a charcoal fire. In making a small drill, workmen, after forming it, heat it to redness and swing it quickly through the air, and find this hardens it sufficiently.

Spatulas, scalers, and plastic filling-instruments can be re-pointed by heating to redness in a flame, bending while there into the required shape, and then flattening on an anvil. Such an instrument will be found hard enough for its work, but soft enough to file to shape or change a little as required while operating. The scaler of Dr. Lord's pattern can easily be made in this way, and I show burnishers made thin and broad, for burnishing contour fillings between the back teeth with a slight rotary motion. They are soft enough to bend a little, but you can test the temper, which is all given by striking on an anvil when cold. They have not been in the fire since bending in the flame. You will notice the appearance of the blade, which is different from that of blades filed to thinness. Some of the instruments shown are re-pointed from steel that is unsuited for anything but scalers, but these were made in the same way. On some of them you will see serrations such as Dr. Lord now has put on his instruments. Some also are serrated on the back; one is made long and thin, with serrations on each side, and flexible enough to bend and pass between the back teeth at the cervical wall. These are quickly made from excavators, and if one breaks it is only a moment's work to make another. The serrations are made by Dr. Lord with a "crossing file," which I show you.

I now come to a matter which I wish more especially to report, as I do not know that it has ever been brought up in dentistry, nor do I find it in any work that has come under my notice. I alluded a moment ago to the hardening of steel by sudden cooling, the hardening of a small drill in the air, and the partial hardening by being brought suddenly to the air before cooling. It can, therefore, be seen that if we wish to draw the temper of a small, hard instrument, and should draw it, in the usual way, to the color wished for, and then plunge it into water or oil, while we should get the usual result, that result might not be a tough, homogeneous piece of steel, but a piece whose outer surface was harder, or different from the inner, and which was consequently more liable to break. I show here a lot of the small sizes of milliners' needles, which are very slender and about the length of broaches. These

have been annealed, and you can see that they can now be bent and twisted in any direction, almost tied in a knot and straightened again, and all the while showing a spring temper. They are soft enough to file and can be made very thin,—a few days since I was able to follow the pulp-canal in a bicuspid in the mouth of a lady nearly seventy years old.

The needles were, of course, hard when I took them, and were placed, point down, in a thin metal-screw-top bottle, which had a few small holes bored in the top to allow for the expansion of air. The bottle was then grasped at the top with a small pair of soldering tongs, bent to grasp it firmly, and passed, bottom down, back and forth over a bunsen flame until I saw the color come that I wished. The bottle was then withdrawn from the flame and allowed to cool. It could cool but slowly, as glass is a poor conductor and the holes admitted but a small amount of air. In my next lot I shall use a long test-tube, corked, with a slit cut along the side of the cork to allow for expansion and to limit the admission of air. This method may prove of little value, but I am glad to have a means of attaining a uniform temper in so small an instrument. I have not tried to barb them, and doubt if it can be done for the smaller sizes.

In closing let me show two plugger-points that I had made for me by Mr. Grafrath. They are curved right and left, but the points are brought into line with the blow of the mallet.

CLINICAL STUDIES OF SOME SUPPURATIVE DISEASES OF THE MAXILLÆ.¹

BY HENRY C. BOENNING, M.D., PHILADELPHIA.²

FROM the point of construction the maxillæ are the most important bones of the face, inasmuch as they form a large part of the osseous framework of this part of the skeleton; but their greatest importance is due, of course, to the fact that they contain the teeth, and to their relations to important organs such as the

¹ Read before the Academy of Stomatology, December 27, 1898.

² Professor of Anatomy and Surgery in the Philadelphia Dental College; Quarantine Physician of Pennsylvania; Surgeon to the Garretson Hospital, etc., etc.

eyes, nose, and mouth. A number of years ago, when my attention was first directed to the diseases of the maxillary bones associated with suppuration, notably alveolar abscess and antral empyema, I observed that while a great number of these cases were being constantly treated at the dispensary, very few of them progressed towards a final successful issue, and still fewer were cured. The suppurative troubles were mostly recurrent, and, though the diseases may have been modified and apparently cured, in a very little while the cases would again appear with a return of the original trouble.

It may be proper for me to say that I owe a great debt of gratitude to the Philadelphia School of Anatomy, which I conducted from 1883 to 1896, inclusive, inasmuch as frequent illustrations of the suppurative diseases of the maxillæ presented themselves on the dissecting-table, and I never lost an opportunity to examine every cadaver for specimens in morbid anatomy illustrating alveolar abscess, antral empyema, and other pathological conditions of the maxillæ. I was wonderfully rewarded in my studies on these diseases by finding (especially during the years from 1887 to 1894, while I was most active in this direction) a large number of illustrations in morbid anatomy of alveolar abscess, and quite a series of specimens of antral disease, which I took especial care to study very carefully.

In many of the specimens I secured, and which I still have in my possession, I found that the teeth had received very careful dental treatment, showing in many instances filling-material extending well down the pulp-canals. In almost every case of section upon suspected cases of alveolar abscess, and, in many instances, sections of the alveolar structures where no suspicion of alveolar abscess existed, I was rewarded by finding well-formed pus-cavities, in some of which the morbid appearances were not only interesting, but instructive to the highest degree.

In specimens of alveolar abscess where the lesions were marked there were present, at and near the extremity of the roots of the affected teeth, cavities of greater or less dimensions, filled in some instances with putrid pus, or pus undergoing caseous transformation, with flakes of carious bone, shreds of tissue, inspissated *débris*, and in several instances the apices of the roots were found roughened, eroded,—in a word, necrotic. In these appearances, I concluded, lay the reason why, even with careful treatment, alveolar abscess continues indefinitely as a chronic and recurrent disease.

The pathological accumulations are retained within the abscess cavity in the substance of the bone, and although (as was shown by the appearance of the teeth in the sections) careful enlargement of the canals of the roots with the conventional treatment of the disease is practised, the contents of the abscess cavities are of such character, substance, and size that it is physically impossible to force them out of the small openings through the roots. When it is considered that such treatment involves, sometimes, the destruction of the normal nerve-supply of the tooth, the enlargement, perhaps, of the neural canal and of its apical opening, and that it is sought through the channel thus formed to discharge the contents of the alveolo-dental abscess, then, I say, the reason why such diseases are recurrent and seldom cured by this line of treatment is clearly apparent. How is it possible to discharge the contents of an alveolo-dental abscess through the minute canal ordinarily cleared for the purpose of tapping alveolar abscess, when the products that are to be discharged are, as a rule, many times larger than the canal which is formed for the purpose of the evacuation of the morbid material?

Following these examinations, or, rather, associated with them, I followed with great care the clinical service in our dental infirmary, and found, as a rule, that alveolar abscess was regarded as one of the most intractable of complaints, recurrent and unsatisfactory in many cases. I inquired very carefully at the dispensaries of other large dental schools, and the testimony was the same.

When nature opens an abscess in any part of the body, of course spontaneously, it results in a prompt cure *if the opening is sufficiently large*. It occurred to me that it has been the practice of surgery, when desiring to evacuate an acute abscess, and, in fact, any accumulation of pus (except such as occurs in the development of a cold abscess), to make a free, bold incision right down to the purulent accumulation, and thus at once discharge not only the pus, but the colonies of developing micro-organisms, the infected material and *débris*, any necrotic masses, and everything incidental to the development of a disease of this kind.

I considered, furthermore, that it was the practice of surgery, in the treatment of abscesses associated with the osseous structures, to cut down upon the seat of pus-formation within the bone, and then by trephine, or otherwise, make an opening sufficiently large to insure prompt, free, and satisfactory discharge of the contents of

such a cavity. I asked myself, why can we not apply the same rule of surgery to the treatment of alveolo-dental abscess? Why shall we temporize with any given case of alveolo-dental abscess, associated probably with a necrotic root, by attempting the discharge of the pus and other contents of the abscess cavity by a minute canal drilled through the root of the tooth, with little chance or hope of success, and often with the probability, if not assurance, of recurrence? Although alveolar abscess in the great majority of cases is preceded by the death of the pulp, such is not invariably the case, but in these exceptional cases the pulp is by the conventional treatment destroyed, of course.

Following my conviction in this matter, it became my plan to urge a radical treatment of alveolo-dental abscess. Instead of enlarging the pulp-canals and treating the abscess through them, I practised opening into the abscess through the external alveolar plate. This operation is so very easily performed that it is readily practised by every dental surgeon. I have found that the most satisfactory plan to follow is, first, to anesthetize the part or patient; next, to antisepticize the parts and then raise a periosteal flap from the external alveolar plate; the bone being exposed, put a clean bur of sufficient size in the holder of the surgical engine and drill directly into the alveolar abscess, then completely remove its contents; all of the accumulated *débris* and, if such be the case, the necrotic extremity of the root should be removed. Not that I would ask you to forego treatment through the root-canals whenever alveolar abscess occurs; not at all. In fact, be sure and put the affected tooth in the best possible condition after opening and thoroughly discharging the abscess through the external alveolar plate, but do this first. In alveolo-dental abscess there is not simply a pus formation at the apex of a root and infection of the contiguous structures, but there is at the same time infiltration of pyogenic micro-organisms and their products throughout the entire soft structures in the proximity of the abscess cavity.

Basing my opinion upon experience, I think that the most satisfactory treatment of this affection is an external opening into the abscess cavity by means of a bur from one-eighth to one-quarter of an inch in diameter; next, thorough antisepsis of the abscess cavity; then the proper sterilization of the pulp-canals and the filling of the same; and then packing the abscess cavity with iodoform gauze or other dressing, leaving the opening through

the external alveolar plate lightly covered by the pendent fold formed by the periosteal flap. This becomes attached, and very soon the wound closes.

What manner of objection can be urged against such surgery as this? None whatever; it is a line of treatment which nature not infrequently adopts. How often do we see infected ostitis and periostitis followed by softening of the bone and caries, even necroses, the development of large abscesses in the overlying soft structures, and unsightly sinuses presenting at some part of the face external to, and sometimes at a very considerable distance from, the seat of the disease? It is the line of treatment which is entirely in harmony with that practised by every advanced surgeon for the treatment of abscess in other parts of the human body. There is but a single exception to the treatment of any abscess by a full, free, large opening, and that is *cold abscess* associated, let us say, with deep-seated structures, as with the bodies of the vertebrae. Here, of course, we can understand why great care and measures involving the smallest kind of an opening are imperatively required. Tubercular or cold abscess, as, for instance, psoas abscess, is due primarily to the action of the bacillus tuberculosis, and only to a certain degree to certain pyogenic micro-organisms. It is different in its nature and its course from an acute abscess or a chronic abscess, or any pus formation which can be compared to an ordinary alveolar abscess. To open a psoas abscess, or a cold abscess, where the greater part of the sac is concealed and beyond our reach, by a large, free opening, might simply allow the entry of germs or putrefaction and decomposition, and result in the formation of such toxines as would destroy the individual. Surgical annals afford many illustrations of the truth of this statement.

Such an abscess, however, may occur in the alveolar structures, but it is then limited and may require the same treatment as has been laid down for ordinary alveolar abscess. In fact, cold abscess in the alveolar regions can occur, but, as has been said, the treatment, owing to its accessibility and superficial character, requires a free opening and thorough evacuation and curettement.

The treatment ordinarily followed for the cure of antral empyema has generally been the removal of a molar, diseased or otherwise, and then through some convenient socket perforation of the floor and irrigation of the antrum. Who that has had large experience does not remember numerous cases of chronic antral dis-

case that have been recurrent through a period of many years? The case-book at my clinic will give the accurate details of a number of cases of antral empyema which have existed anywhere from two to twenty years, during all that time having been under the treatment of numerous dental practitioners.

Following the thought laid down in the discussion of the treatment of alveolo-dental abscess, it occurred to me years ago that if we desired to cure antral abscess, so called, we must establish an opening sufficiently large to thoroughly evacuate the antral cavity, to clear out the putrid material, to curette the carious walls of the antrum, to remove all diseased structures and all pathological masses, and completely discharge the contents of the antrum, which I have repeatedly found consisted not only of pus, but of *débris* and necrotic substances of a fibrous and osseous nature. The practice sometimes pursued, which, in fact, I regret to say, is very often pursued,—to extract a firm tooth, often a sound tooth, and then perforate the floor of the antrum of Highmore,—is reprehensible in the extreme. In fact, it is an unjustifiable proceeding to sacrifice a useful dental organ, and in the great majority of cases to no purpose, for in almost every case that I have seen, where this line of treatment has been followed in the attempt to cure a case of antral empyema, the opening was entirely inadequate to discharge the contents of the diseased cavity and to admit of satisfactory after-treatment. It has been our practice in the treatment of suppurative diseases of the antrum, especially where they have been of long standing, to raise the soft structures from the anterior antral wall, and then by means of a trephine in the surgical engine make an opening in the antrum large enough to insert the end of the index-finger. Some time ago an eminent member of your profession was present at my clinic and witnessed the operation of trephining the antral wall. He expressed himself as being amazed at the practice of opening the antrum heroically for antral empyema, but his amazement turned to strong commendation when I took out of that diseased antrum, which had been the subject of treatment for over three years, a nodule of inspissated pus and *débris* which was quite as large as a small marble; and when I dislodged, by the lightest touch, a flake of bone larger than a finger-nail, and demonstrated that this flake of bone was not only necrosed but black as the result of long retention, he publicly stated that what he had witnessed had forever changed his views on the treatment of long-continued cases of this kind.

Such facts as these are not as widely known by the dental profession as they should be, but we have established them now in a number of operations, especially within the last three years, and I am to-day prepared to say that it is my belief that the safest and most satisfactory operation for chronic antral abscess is this large anterior opening directly into that cavity, the removal of all pathological masses, the satisfactory irrigation and after-treatment, and, what is invaluable to the patient, no manner of disturbance of the dental arch.

A few suggestions associated with the after-treatment of these cases is of prime importance. In the first place, it is imperatively required to keep the parts antiseptically clean, so as to prevent the accumulation of any discharges or foreign materials. If absolute surgical cleanliness is not observed following this operation, you may have reinfection of the bone and progressive devitalization until a great portion of the maxilla is involved in the process of softening, caries, necrosis, and destruction. The antral cavity must be kept carefully packed and everything done to establish asepsis. In from four to six weeks after the operation the cavity is, as a rule, filled, and, with the extreme care we apply in our after-treatment, I do not recall a single failure to cure antral empyema.

In treating cases of recurrent alveolar disease, as well as cases of chronic antral empyema, we shall continue perforation of the bone into the abscess cavity, thereby insuring the cure of the case and the retention of the dental organs in as perfect a condition as the exigencies of the case will allow.

ROOT TREATMENT: A POSITIVE METHOD.¹

BY F. MILTON SMITH, D.D.S., NEW YORK CITY.

SINCE so much has been said upon the treatment of pulpless teeth, it will not be thought strange if the gentlemen present do not enthuse at the mention of the subject.

More time has been given to the discussion of this subject than

¹ Read before The New York Institute of Stomatology, November 1, 1898.

to almost any other in which we as a profession are interested. Notwithstanding this, if we judge by the reports of society transactions, and by the articles published in our journals, it would seem as though we had made almost no progress in the treatment of pulpless teeth during the past thirty years.

On page 375, "Harris's Principles and Practice," edition of 1871, we find the following directions for treating pulpless teeth, as practised by Professor Gorgas, of the Baltimore College of Dentistry:

"Remove carefully all diseased and decomposed matter, *mechanically cleansing* the root thoroughly." (Italics are ours in place of his more lengthy description as to how he does it.) "Syringe out all loose particles with tepid water, dry the canal thoroughly, saturate a piece of floss silk with creosote, and pass to the end of the canal; seal up cavity for twenty-four hours, then examine, and, if necessary, repeat the dressing. When not the slightest odor of purulent secretion is perceptible, fill the root temporarily, and wait for a week. Not infrequently it is necessary to repeat this course of treatment several times. In one case two months elapsed before we felt warranted in filling the tooth."

The writer of this paper knows of one case where an eminently respectable dentist of this city treated such a case for more than eighteen months.

With some slight and apparently immaterial changes as to drugs, the writer is inclined to think this is considered orthodox treatment by very many of our best men to-day.

We have personally removed many such temporary—or, as some men term them, permanent—root-fillings of cotton, silk, etc., during the last three years, the last one only a few days since.

In a paper read before this society, our highly esteemed friend, Dr. Louis Jack, of Philadelphia, in describing his treatment of pulpless teeth, says, "When there is no fistula, the difficulty of disinfection is increased. My plan is to expect a correction of the conditions by the slow admission of a disinfectant, which in its nature is not irritating. For this purpose I loosely fill the canal and pulp-chamber with a solution of aristol, and fill the outer cavity around a root-filling instrument of such size as will permit the effusions forming at the apical region to escape through the small opening left on the withdrawal of the broach. I then *repeatedly* dress it in this manner [the italics are ours], making the vent or opening smaller each time. Then [as we suppose when he deems

it safe] I temporarily fill the canal tightly with a thread dipped in aristol as a tentative measure."

If our neighbors have removed as many root-fillings of our making, in order to relieve suffering, as we have silk, cotton, and other absorbents for the same purpose, we are willing to admit without further controversy that our method is a failure. If our patients do have serious trouble, they succeed much better in keeping it from us than they used to in the good old days, when we filled temporarily with cotton, string, silk, etc., for then we could not eat our meals in peace, nor could we always get an uninterrupted night's sleep.

We find in our reading that it is considered very bad practice, in opening a devitalized tooth, to immediately remove all the contents of the pulp-canal, lest in our attempt to do so, we force septic material through the end of the root and so produce trouble. We suppose this is why Dr. Jack recommends a slow admission of disinfectant, by loosely filling the canal with aristol.

Dr. J. Foster Flagg, in the last article we read from his pen, says, "I regard it as a matter of first importance that the apical foramen shall not be passed; above all, enlarged." With the latter suggestion we heartily agree. As to the extreme danger of passing the foramen we are not so confident.

In this society, at the October meeting, as we remember it, Dr. J. Morgan Howe cited a case where he had opened a central incisor in which the pulp had been for a long time dead. If we are not mistaken, he said he was very careful not to go up more than two-thirds of the way to the end. Notwithstanding this, an abscess developed inside of forty-eight hours.

It has been a matter of great interest to us that, in many cases cited by our ablest and best men, where they caution us to be extremely careful not to go to the end of the root, they report serious trouble following their most careful efforts in that direction.

In a paper by Dr. Howe, also read before this society, he most appropriately sets forth our relation to the proper treatment of roots, in these words, "The progress which we cannot withstand is demanding of us to-day that we shall make pulpless root-canals inoffensive, not occasionally, and with much labor, endurance, and expense, but that we shall do it often, quickly, and at a minimum of expense."

This, it seems to us, is a fair statement. Your essayist is very glad that, as far as he knows, none of our leading men have gone

so far as to say that it is not possible to go to the extreme end of these roots, thoroughly disinfect, render aseptic, fill the canal at the same sitting, and have the operation successful. Had any one of many we might name seen fit to do so, we should approach the matter with even more caution than we now do. Since they have not absolutely denied it, we desire to raise the question, for we believe it can be done in almost every case.

Far be it from the mind of your essayist to come before this company of earnest, faithful men, some of whom were in practice before he saw the light of day, and whose shoe-latchet he is not worthy to unloose, in any boastful spirit to tell of the great things he can accomplish. Nor is he unmindful of that word of caution given to one of old,—“Let not him that girdeth on his harness boast himself, as he that putteth it off.” Nevertheless, he cannot be rid of the conviction that he is not a true man who, having received a suggestion from another which has lifted a great burden from his shoulders, does not seek to lead out into the light some other. Nor is he a brave man, even though he fears not the cannon on the battle-field, who from fear of adverse criticism refuses to put forth his best effort to transmit to others the benefit he has received.

We have sometimes failed in accomplishing what another has claimed to be an easy matter, because that one has omitted from his description some detail which he took for granted we were conversant with. This is our apology for more minuteness in describing our method than some before us may think necessary.

Our treatment being almost without exception the same, in all cases of pulpless roots, we shall not classify the different conditions found, which are familiar to all.

Unless the tooth is so sore as that to work on it would produce great discomfort, we at once adjust the dam if possible. We consider this very important, as it leaves us the free use of both hands, with no danger from the saliva. We then open up the pulp-chamber so that we can get directly at the roots; not one, but all. This sometimes necessitates the removal of a large portion of the crown, but we had much rather lose three-fourths of the crown than save nine-tenths and have it in such a condition that our patient dare not bite on it; for in the former case we can supply the crown, but we cannot supply the lack caused by not being able to get at pulp-canals directly.

Therefore, with the old farmer who advised his son to get rich

honestly if he could, but get rich, we say, most emphatically, get direct access. Next, remove everything you possibly can from the roots, going to the extreme end if you can get there. We have been two hours getting there sometimes. It is not our practice to enlarge the canal, except sufficiently to get a good entrance. Unless the root is extremely foul we rarely use an antiseptic until we have the root mechanically cleansed. After removing all *débris* possible, if there is a discharge of pus or moisture, we very patiently absorb it with paper wound around broaches, removing each piece after using. If we can now get the root dry (kindly note the provision), we expect to fill it permanently at that sitting, no matter what the previous condition, provided it is not too sore to work upon. If the root is causing pain, we open it freely to give relief, and defer the operation to a subsequent sitting. We said we expect to fill the root at once if we can get it dry. We make this exception because we have found, during ten years past, probably six or eight lateral incisors where the accumulation of a purulent fluid resembling more the serum of the blood than real pus has been so abundant that we have not been able to get the root dry after patiently working one hour. Usually even these can be filled at the second sitting.

Reference has been made to Dr. Flagg's caution not to go through the foramen. Regarding this we would say that we never feel absolutely safe unless we have gone through with a fine broach, for then we feel quite confident our remedy will reach the proper place. We firmly believe we have not lost three teeth in ten years where we have been able to get our medicine through the foramen and have filled the root clear to the end. Having dried the root and, if possible, passed our fine broach through it, we now insist that a messenger shall go up through the end and throttle those little fellows who are up there determined to make trouble. For upward of three years our sheet-anchor was chloride of zinc, ten-per-cent. solution, followed with this root-filling: gutta-percha dissolved in chloroform to the consistency of cream, in which a liberal supply of iodoform powder is mixed. We think the exact quantity not material, but should use probably one drachm to one ounce of gutta-percha solution. Since iodoform is not perfectly soluble in chloroform, we stir the mixture before using. Although the zinc chloride can be depended on to do the work effectually, we found it unnecessarily severe, and for seven years we have used carbolic acid instead.

Whether we awakened those micro-organisms or not by going through the foramen with our instruments, or whether the fresh air we allowed to pass up when we opened the basement door did, "deponent saith not;" it suffices to say that they are there at this stage. I think all will agree on that point. As Josh Billings used to say in regard to some dogs that kept him awake, "they need something, probably killing."

To get our carbolic acid where we want it, we often place a drop in the root, then place a piece of softened gutta-percha in the cavity, and with a burnisher force it into the root.

As to the old fogysims of using carbolic acid and iodoform, we simply say that with us they accomplish the purpose. So long as they do we shall use them.

When we are satisfied that our carbolic acid has gone where we want it, we dry the root as thoroughly as we can, after which we pump our gutta-percha solution into it, following with shreds of bibulous paper dipped in the solution and packed as thoroughly in the root as we know how. If the root-canal is so small that we are unable to carry these shreds of paper, we, after pumping the mixture in the root with a fine broach, carry a piece of eighteen-carat gold wire as far up as we can. We have some of this wire, about three-one-thousandths of an inch in diameter, which the late Mr. R. S. Williams drew out for us some years since.

Dr. S. J. Perry, of this city, mentioned a similar plan some years ago, but, as we remember, he takes larger wire and files one end to a very fine point.

If the foramen is enlarged, we run a hooked broach through it after placing on the shank of the broach a piece of rubber dam. Having shoved our broach through, we draw it back till the hook catches on the edge of the root; we then shove our rubber up till it touches the cutting edge of the tooth, then withdraw the broach carefully, when we have the exact measurement of the root. This plan was, I think, first suggested by the late Dr. Atkinson.

Having ascertained the length of the root, we take a canal-plugger, place on the end of it a piece of softened gutta-percha about as large as will close the foramen, having first made a mark on the shank of our plugger the exact distance from the extreme end of the gutta-percha that our root is long. After placing our solution of gutta-percha in the root, we carry our root-plugger to the end, leaving the gutta-percha there or stopping when our mark on the instrument is even with the cutting edge of the tooth. We

then fill the balance with paper dipped in the solution, as before mentioned, finishing at the outer third with oxyphosphate.

In cases involving a fistulous opening we have often pumped our gutta-percha solution through the fistula, but have never had trouble therefrom.

We find a few roots where the canals are so fine we cannot get even our gold wire into them. These we do not fill except as we can get a little of our solution into them.

It is our custom, after treating and filling a root, to say to the patient that they will have some quite severe pain for a few hours following the treatment. Quite often this prediction is not fulfilled, in which case they are agreeably disappointed; if it is, they are not frightened, and bear it until it subsides.

At the risk of wearying you, we will describe a few cases in which we have pursued the treatment laid down.

In August of 1888 a lady patient came to us recommended by her dentist out of town, she having removed to this city. Previous to his recommending her to us her dentist had drilled into the pulp-cavity of the superior right second bicuspid, to relieve the intense suffering incident to an incipient abscess.

Having practised according to the orthodox style, he very candidly told her that since she lived at so great a distance from him, and it would be necessary for her to have it treated many times, it would be to her advantage to have it treated nearer home. He then recommended your essayist. At the first sitting we treated and filled the root. Severe pain followed, but gradually subsided after a few hours.

The next day the cheek was considerably swollen, but the pain had almost entirely disappeared, and in two or three days all swelling had gone. This patient subsequently, by mutual understanding with her dentist, became our patient, and we have seen her, almost without exception, every year since, and up to last May the tooth had not given a moment's discomfort.

In 1891 the best woman on this continent (of course, excepting the wives of the other gentlemen present) complained of the superior left central incisor giving quite a little pain upon her passing from a warm room to the cold air; and *vice versa*. Upon examination we diagnosed a devitalized pulp. We opened the tooth with some hesitancy, remembering the oft-repeated experiences of the days gone by, and treated and filled it at once. Since the second or third day after the treatment this tooth has been perfectly comfortable.

The following year your essayist developed an abscess, which formed and discharged through the gum from the second upper right bicuspid. He consulted Dr. A. J. Reinhold, then of this city, who had practised this method for several years, and who first suggested it to us. He opened into the root, finding it filled with a fluid almost black in color, treated and filled as before described, and at the same sitting placed in it an excellent gold filling, which may be seen by any gentleman present who desires at the close of the meeting. The fistula did not heal for nearly two weeks, when, upon a portion of the root-filling discharging from the gum through the fistula, it healed perfectly and has never recurred. The time consumed in opening up, treating, and filling the tooth with gold was three hours.

In 1893 a lady came to us suffering with a lower sixth-year molar which she said she had hardly dared to bite on since it was filled, a year previously. We removed an oxyphosphate filling, found some loose cotton in the pulp-chamber, and some iodoform powder in the chamber and opening to roots. We opened it up, but did not get it sufficiently over the soreness for several days so that we could work at it without great annoyance to the patient. In a few days, however, we thoroughly cleansed and treated and filled it, after which the patient could use it with perfect comfort.

We found, also, in this mouth an upper bicuspid which the patient assured us had been open for two years, three dentists having given it up because a filling could not be tolerated. We found it in an unusually foul condition, and immediately treated and filled it, since which, up to a short time ago, when we last saw the patient, it has been perfectly comfortable. These two teeth we looked upon as being as unpromising as any we have ever been called upon to treat.

In 1894 a gentleman came to us who had been treated by a dentist whose reputation as a successful operator in this city is second to none. He wanted us to examine the upper left first molar, which had a fistulous opening, discharging in the roof of the mouth. The patient stated that it had been repeatedly treated some six months previously.

We removed an oxyphosphate filling, and found a very large quantity of cotton in the palatal root in an extremely foul condition. We said to this patient, "You have been treated by a man whose reputation is absolutely first-class. He has treated you after the orthodox plan, and has failed. I can do no worse than

he has done. Let us try another plan, and if we fail, have the tooth extracted." He consented. We found the foramen of the palatal root much enlarged. We treated but once, and filled roots and crown. The fistula immediately healed, leaving quite a cicatrix, and had not returned up to last winter, when we saw the patient.

The same year a lady came to us with a central incisor badly abscessed, and with considerable of the process, including the septum between it and the lateral, gone.

We found an opening in the palatal surface, and removed from the root one of the rankest pieces of cotton or silk string it has ever been our fortune to meet. We immediately cleansed, treated, and filled this root and tooth, the abscess at once healed, and the tooth, which had been quite loose, became comparatively firm. The dentist who had treated this tooth assured the patient that, owing to her general systemic condition, she could never have a dead tooth filled successfully.

One of our most recent cases, and we are done with this part of our story. A gentleman came to us with a lower bicuspid badly broken away. We found the root filled. As he said he had had no trouble with it, we concluded to trust it. Before twenty-four hours had elapsed we regretted it. The crown, a gold one, had been set but a few hours when it began to give pain. In about forty-eight hours we removed the crown and found the root filled with cotton. After removing the cotton and running a broach down, we got two or three drops of pus, which gave instant relief. The following day our patient left town for a week, so it remained open. On his return we found no pus, but a very bad odor. We cleansed, treated, and filled the root at once. Considerable swelling followed, but no severe pain. In four days the swelling had subsided, and we believe our patient will have a comfortable tooth for many days.

The foregoing we have taken at random from our experience, and believe they fairly represent our every-day work.

In summing up, we would say that we regard as essential to success in root treatment, first, the rubber dam; second, free direct access; third, thorough cleansing mechanically and antiseptically; fourth, getting the antiseptic through the root; fifth, perfectly filling the root immediately upon getting an aseptic condition with an antiseptic root-filling; sixth, sufficient confidence in the method used to insure thorough work, and the minutest attention to details.

Given these conditions, we believe that any careful operator who treats and fills roots at once will succeed far beyond the one who keeps his roots under prolonged treatment. We do not claim to offer a scientific reason for our success, but we have a theory that to very carefully open a root and remove two-thirds of the canal contents, after the bacteria have been awakened in the other third and beyond the root, is to invite the trouble we seek to avoid. On the other hand, we believe that where we have just opened the tooth, and set forces at work which are bent on its destruction, we ought at once, if possible, to get our antiseptic not only in the root, but also as much farther as the mischievous effects have gone. After we have done this, and before more micro-organisms have come to life, we ought to forestall them by filling the root so thoroughly with an antiseptic material that there will be no home in which they may abide.

Some may ask the question, "Why does the essayist come before this society in the rôle of an empiric. We are scientific men, and unless scientific reasons can be given us for methods advocated we cannot be expected to accept them." Our answer is, Whether we will or no, with all our science, we are still and always will be empirics.

What we believed was scientific yesterday, and in our pride followed because it was scientific and successful, to-day we find was empiricism, because we have gone just a step farther. We continue to follow that method of practice to-day because it brings good results, and, forgetting our boasting of yesterday, we still call ourselves scientists. To-morrow will bring us a step farther, when we shall look upon the practice of *to-day* as empiricism; and so each day we may, if faithful, make just a little progress, until that day when "the grinders cease because they are few, and those that look out of the windows be darkened," and the silver cord is ready to unloose and the golden bowl to break. Then we shall look back upon all our attempts to answer the *ultimate* why? and say, "The wind blew where it listed, and we heard the sound thereof, but could not tell whence it came nor whither it went."

Until that time let us seek all the scientific light we may, forgetting not that some methods, the working of which we do not fully understand, may be very helpful to humanity.

A METHOD FOR MAKING SEAMLESS GOLD CROWNS.¹

BY DR. MARK HAYTER, DALLAS, ORE.

MR. PRESIDENT, AND MEMBERS OF THE OREGON STATE DENTAL ASSOCIATION,—I will attempt to describe to you a method I have devised for making seamless gold crowns. The tooth or root to be crowned is prepared in the usual manner, and measured with a thin strip of copper or a fine wire. Select a draw-plate punch that will just pass through the measure and lay to one side for future use; cut and straighten the measure; from a piece of well-annealed copper plate (the same gauge as the gold used in the draw-plate) cut a strip the length of the measure and about three-fourths the width the finished crown is to be in length. Bend this strip, bringing the ends together, and solder; this can be done with silver solder over an alcohol lamp or gas-jet. Shape and fit this band to the tooth, trimming the edge so that it will pass under the free margin of the gum; also trim the other edge, if necessary, to prevent the opposing teeth from interfering when in occlusion. Remove the band, and with suitable pliers give the desired contour. Use vaseline in oiling the tooth on which the crown is to be placed, as also the opposing teeth, and place the band in position, wedging if necessary to keep in place. Fill with quick-setting plaster, and have the patient close the jaws and keep them so until the plaster sets. This gives the correct occlusion. Remove the band and trim the plaster to represent the remaining portion of the crown. This band and the plaster combined give the outward form of the finished crown. I call this the "crown form." Finish filling the band with plaster or moldine, and into this insert a burnt match, wood toothpick, or anything by which it can be most conveniently handled. Pour a rubber ring about an inch deep nearly full of fusible metal, and into this press the "crown form" full length, occlusal end down. Remove the plaster, and with a medium-sized wheel bur make a groove in the metal around the upper edge of the band. Pinch the band together and remove. The mould for the crown is now complete. Draw a cartridge of gold to the size of the punch previously selected and shape it so that it will enter the mould. Into this, with suitable punches, drive shot and cotton until it is swaged to the form of the mould. A little oil dropped

¹ Read before the Oregon State Dental Association, December 15, 1898.

into the shot before the swaging is commenced will prevent them from being driven into a solid mass, and makes their removal an easy matter. Place the mould in a ladle and melt away from the crown. Trim the neck of the crown to the line made by the groove in the mould, polish, and, if the work has been done carefully, it is ready to be cemented to place.

When crowning a tooth to be used as an abutment in bridge-work, if but little if any of the occlusal surface is missing, the method differs from the above in the following respect: After shaping the tooth and fitting the band, with modelling compound take the bite, and, if the band does not come with it, remove, place in proper position, pour each side, and place in a crown articulator. After the plaster has set remove the compound and varnish the opposing teeth, place a little fresh-mixed plaster upon the end of the tooth within the band, close the articulator, and allow it to remain so about five minutes. Open and trim the plaster to the desired shape; then cut the "crown form" from the cast and proceed to finish as first described.

As you may have noticed, this method is made up in the main from parts of other methods. About the only original feature claimed is the sinking of the "crown form" into the fusible metal, full length, thereby making a mould or counter-die in which the crown is formed.

The merits claimed for crowns made by this system are perfect occlusion, proper contour, accurate adjustment, and the ease and rapidity with which the work can be done.

TWO CASES OF DISEASED ANTRUM.¹

BY W. H. M'CUTCHEON, D.D.S., BROOKLYN, N. Y.

I TAKE pleasure in reporting this evening two cases of antral disease. The first was a Miss H., aged nineteen, who came in April, 1895. Her difficulty was an ulcerated right superior second bicuspid, which I had treated and filled in October, 1894. The root being filled with gutta-percha, I opened and treated with a five-per-cent. solution of chloride of zinc, and sealed the tooth with

¹ Read before The New York Institute of Stomatology, November 1, 1898.

gutta-percha, dismissing the patient for a week. At the end of that time she came and complained of severe neuralgia, extending to the region of the temple. I opened the tooth, which resulted in relief, though there was no pus present. I treated with a three-per-cent. solution of hydrogen dioxide, leaving loose cotton in the cavity, and dismissed the patient for one day, at the end of which time I extracted the tooth under protest, the patient complaining of severe neuralgia. I asked her to call again in two days, that I might syringe the socket, which I did with phenol sodique in solution of a drachm to the ounce. She reported relief from pain. After an interval of two weeks the patient returned, with severe neuralgia in same vicinity, and with first bicuspid sore to pressure. I opened the tooth, and found a partially devitalized pulp. I applied arsenic fibre and dismissed her till the next day, when I removed the pulp intact, filled canals, and asked the patient to call again in two weeks. She reported before two weeks, complaining of renewed neuralgia, and requested removal of first bicuspid, which I refused. The patient called on two other dentists, and both refused to extract the tooth. One of the doctors said that the entire trouble came from the right superior lateral incisor, which was, as far as I could see, not affected at all. The patient again resumed treatment under my charge, and, after exhausting all methods to alleviate the pain, I was about to give up the case, when I met Dr. Brockway and stated the circumstances. He called at my office April 12, 1896, and after examination we agreed that the first bicuspid had curvature of the root at the apical region, and decided to amputate the same. Dr. Brockway applied chloride of ethyl in spray, and with a large rose bur I drilled in the vicinity of the apex of the palatal root, through the alveolus, syringing with tepid carbolic solution of water, and inserted a tent of cotton with dressing of oil of eucalyptus and iodoform.

The next day, at 2.30 A.M., the patient reported at my office, and said the tooth must come out. I extracted it under protest. The patient again reported in about a month, complaining of throbbing pains in the malar region. After examination with electric mouth-lamp, I diagnosed the case as antrum disease. Opening the right superior first molar, I attempted to reach the antrum through the anterior buccal root, but finding that I could not, I extracted the tooth, and drilled up through the socket into the floor of the antrum, through which pus exuded immediately. I syringed with a three-per-cent. solution of hydrogen dioxide,

which effervesced through right nostril and also by way of posterior nares, giving immediate relief as far as throbbing was concerned. I had Miss H. call twice daily, and used either hydrogen dioxide or phenol sodique in solution as an injection. In the summer of 1896 I inserted a silver drainage-tube, and asked her to spray the cavity herself with phenol sodique in solution. At the end of the summer she reported as being perfectly free from pain, and she has continued so up to the present time.

The second case, Mrs. W., aged fifty-eight, presented in April, 1898. Her difficulty was an ulcerated left superior second bicuspid, which contained a large contour gold filling. I drilled through this filling, and found a putrescent pulp, which I removed, and syringed out the canal with hydrogen dioxide, which partially exuded through the fistula, though the major portion went into the antrum. I attempted to treat the antrum through the root of the second bicuspid, but finding the diameter of the canal so small as to retard the exit of the solution, I extracted the tooth and sprayed through the socket twice daily. In the mean time the sixth-year molar had started to elongate, and upon opening it I found the contents of the palatine and the posterior buccal roots alive. I devitalized these and filled the three canals with gutta-percha. The patient soon complained of severe neuralgia in the vicinity of the posterior portion of this tooth, so I again opened the tooth and removed the gutta-percha from the posterior buccal and palatine canals, but there was no alleviation of pain.

I was called upon to extract the sixth-year molar, and did so, finding the posterior buccal root penetrating the floor of the antrum. I now had the two openings into the antrum, one from the socket of the second bicuspid root, and one from the socket of the posterior buccal root of the molar, through both of which I syringed, twice daily, phenol sodique, leaving tents of cotton in both sockets containing solution of oil of eucalyptus and iodoform.

I continued this treatment for one month till all odor and discharge of pus had ceased, then I gave patient carbolic solution (five minims to the ounce) to use as a spray herself with a syringe. I asked her to introduce the tents of cotton containing sweet oil into the posterior orifice, having in the mean time allowed the bicuspid socket to close. The third day after she called and complained of frightful sneezing spells, and gave me a large pledget of cotton which had been expelled from the left nostril, and had evidently been one of the tents. As this happened several times I prohibited

her from using cotton as a tent, and vulcanized a little affair resembling an artist's flat-headed tack, which I directed her to insert during meal-times only. She reported in September, when I lacerated the walls of the socket to hasten granulation, the antrum being healed, and she has had no further trouble. I prefer something of the character of the little vulcanized plug referred to to either cotton tents or a drainage-tube in the treatment of these cases.

Abstracts and Translations.

ON THE CAUSE OF SO-CALLED PHOSPHOROUS NECROSIS OF THE JAW IN MATCH-WORKERS.

BY RALPH STOCKMAN, M.D., F.R.C.P.E.¹

HISTORICAL SUMMARY.

PHOSPHORUS was first used in the manufacture of matches in 1833, at Vienna. Shortly after its introduction, and ever since, cases of necrosis of the bones of the upper and lower jaws have occurred among the workpeople employed in match-factories. The condition was first described by Lorimer, who, between the years 1839 and 1845, saw nine cases in Vienna, but immediately after cases were also reported in Nuremberg, Strasburg, Berlin, Lyons, Paris, Manchester, and London, as having occurred among the workers in match-factories. Improvements in ventilation and in manufacturing machinery have greatly diminished its frequency, but it has continued to be not uncommon, and is widely recognized as a risk incurred by those who work with phosphorus. The clinical symptoms have been fully described by Lorimer, Heyfelder, von Bibra and Geist, Harrison, Roussel, and others. In addition to their more systematic descriptions, many isolated cases have been put on record by different writers, and all agree substantially in their main features.

PATHOLOGY.

As regards the bone, the condition is one of cario-necrosis; there is chronic otitis and periostitis, and it differs in no respect from the same lesion as seen in other bones and from various causes.

¹ Professor of Materia Medica in the University of Glasgow.

It has long been held that this necrosis, or cario-necrosis, as it should rather be termed, is due to a specific action of phosphorous fumes on the bone, these being supposed to cause a peculiar and specific kind of inflammation. If one considers, however, the whole circumstances and the clinical histories of individual cases, the conclusion must inevitably be drawn that the process is due to infection from a micro-organism. Phosphorous fumes consist of phosphorous anhydride (P_4O_{10}) chiefly, with some phosphoric anhydride (P_2O_5), and during the oxidation either ozone or hydrogen peroxide is also formed in small amount. From what we know of suppurative processes, it is inconceivable that any of these bodies can cause a chronic purulent inflammation of bone such as has just been described as occurring in "phossy jaw."

Acting on this idea, I applied to Mr. Cornelius E. Garman, surgeon to Messrs. Bryant & May's match-factory, who very kindly has supplied me with specimens of pus from six cases of phosphorous necrosis of the jaw under his care at the present time. In every case the pus was very fetid, and was greenish, or brownish, or grayish in color. Attempts to make cultivations from the pus revealed the presence of *staphylococcus albus*, *streptococci*, and numerous other organisms, none of which could reasonably be regarded as the cause of the cario-necrosis.

PRESENCE OF TUBERCLE BACILLI.

It is well known that tubercle bacilli cannot be cultivated from pus, but on staining cover-glass preparations of the pus by the Ziehl-Neelsen method the bacillus tuberculosis was found in every case. As is usual in the discharge from tuberculous bone, the organisms were few in number and difficult to find except on the closest and most careful examination. On centrifuging the pus and then examining the sediment they were more easily detected. Sometimes several cover-glasses had to be examined before any of the organisms were seen. Most of the bacilli were perfectly typical in appearance, others were small and thick, resembling the forms usually found in the urine. They were scattered about singly, or in small clumps, or in groups of one or several dozens.

Inoculation of guinea-pigs with the pus did not infect these animals with tubercle, and hence the bacilli must be regarded as being either dead or as having almost entirely lost their infective virulence. It is now proved, however, that tubercle bacilli in this condition are quite capable of setting up and maintaining local

suppuration and irritation for an indefinite time. Besides, they are assisted by the action of the pyogenic organisms with which the pus swarmed. The condition of the tubercle bacilli is probably to be explained by the fact that all the cases which I have had an opportunity of examining are recovering, and have been under treatment for very long periods with antiseptic mouth-washes, etc. The condition generally is exactly similar to what is seen in tuberculosis of the jaw in cattle, and in tuberculous disease of other bones in man. The presence of the tubercle bacillus can hardly be regarded as fortuitous, seeing that it was found in every case, and its presence is held, so far as our present knowledge goes, at least, to be proof positive of the tuberculous origin of any lesion.

If further proof of the tuberculous nature of the jaw-disease were wanted, it is to be found in looking through the accounts of post-mortem examinations of fatal cases. In most cases death occurs from tuberculosis of the lungs. Whether this is due to infection from the jaw tubercle, or whether the phosphorous fumes damage the lungs, and make them more susceptible to direct infection, I am unable to say.

General tuberculosis is also not uncommon, while tubercle of the abdominal glands and tuberculous ulcers of the intestine are almost invariable, these last arising certainly from infection by swallowing the pus. Abscess in the brain, purulent pleurisy, and tuberculous meningitis are also occasional causes of death. Hectic fever and emaciation always accompany fatal cases.

The part which the phosphorus plays in the process is not far to seek. The acid fumes (phosphorus and phosphoric acids) produced by its oxidation in the air have no effect on bone covered by gum or mucous membrane; but when they can penetrate to the bone directly through the aperture left by a decayed or extracted tooth or any injury, they erode the bone, weaken its nutrition and resisting power at this small spot, and make it susceptible to infection by tubercle bacilli. The bacilli having made good their foothold, spread slowly in some cases and with disastrous rapidity in others. I think I am correct in saying that the great majority of workers in match-factories have carious teeth, and yet only a very small proportion of them become affected with cario-necrosis of the jaw.—namely, those of them who, owing to their home surroundings or to individual predisposition, become readily infected by the tubercle bacillus. Von Bibra and Geist state that the dis-

case may occur weeks or months after the patient has left the match-factory, and in one of their reported cases the woman had actually been eighteen months away from the work before any symptoms began. This in itself is almost complete proof that the phosphorous fumes are only a predisposing cause, and that the disease depends on subsequent infection. It is well known that von Bibra and Geist, and later Wegner, produced suppuration and cario-necrosis in the jaws of rabbits by injuring the periosteum and then exposing the animals to phosphorous fumes (on uninjured rabbits the fumes had no effect). The rabbits all died in from five to ten weeks' time, and were found to have tubercle of the lungs. I experimented in a different way, as it is evident that these animals had become rapidly infected from the laboratory cages in which they were kept. I got new wooden hutches made, placed them in a room where animals had not been previously kept, and kept them scrupulously clean. In the hutches pieces of phosphorus were placed in a mortar on damp earth (to avoid risk of fire) in such quantity that the cages were constantly filled with the fumes in much greater amount than can possibly occur in any factory. Four rabbits were then placed in the hutches after the periosteum and gum had been removed over a considerable portion of the upper and lower jaws in each. In one a tooth was loosened in addition, the operations being all performed under chloroform. They seemed to suffer no inconvenience either from the operation or from living in the phosphorous-fume atmosphere. It has been very difficult to prevent the gum growing over the exposed bone, and after many weeks there is not the slightest trace of any jaw affection. The exposed surface of bone has become slightly eroded and rough, but whether from the action of the acid fumes or from that of the bacilli of the mouth it is impossible to decide.

TREATMENT.

The treatment hitherto pursued in cases of phosphorous jaw has been to wash out the mouth with deodorant and antiseptic lotions, and wait until the necrosed pieces of bone come away. This is always extremely tedious, and may last many years. In extreme cases the whole lower jaw, or half of it, or parts of the upper jaw have been excised. Sometimes by so doing the whole of the infected portion may be removed, but frequently the disease has again broken out in a neighboring part of the bone. It is evident, however, that early operative interference is called for, and

that the original tuberculous focus at the root of the tooth should be removed at once.

PROPHYLAXIS.

As regards prophylaxis, there is absolutely no risk so long as the bone remains protected by gum, and even when carious teeth are present the entrance of the bacilli can be prevented by careful stopping. Efficient ventilation of the workshop will dilute the acid fumes arising from the phosphorus, and make them less active in injuring exposed bone. The infection with the tubercle bacilli is a matter quite apart from the factories, and cannot be controlled either by State regulations or workshop rules. It is acquired—as other tuberculous affections are acquired—by certain persons and not by others, and owing to the present all-pervading frequency of the organism persons with exposed bone eroded by acid fumes, and living under bad hygienic conditions, are very apt to become infected. Whether the fumes also weaken the mucous membrane of the lung alveoli and predispose to pulmonary phthisis among persons employed in match-factories, I have no information which will enable me to decide. It is just possible that actinomyces or other organisms may also occasionally lodge in the weakened bone, and lead to caries and necrosis, but in those cases which I have hitherto examined I have only found the tubercle bacillus.

My great difficulty all along has been to procure a sufficient amount of clinical material to enable me to make my observations more extensive and precise, and I shall be greatly indebted if any surgeon who has cases under his care, and more especially recent ones, will supply me with specimens of the discharge.

In conclusion, I have to express my great indebtedness to Mr. Garman and his son for a great deal of information and assistance, as without their active help and co-operation I could not have made these observations.—*British Medical Journal*.

Reports of Society Meetings.

AMERICAN ACADEMY OF DENTAL SCIENCE.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Wednesday evening, October 5, 1898, at six o'clock.

President Cooke.—We have with us as guest this evening a gentleman who has contributed very materially in the past to the success and interest of this Academy. I am pleased to introduce to you Dr. Horatio C. Meriam, of Salem, Mass., who will speak to us upon "The Meriam Extension Crown," extra tough gold solder, and annealing steel.

Dr. Meriam.—Mr. President and Gentlemen, the chairman of your Executive Committee wrote me a year ago asking if I had anything for the Academy. I had nothing at the time, but later on some things seemed worth reporting, so last spring I wrote him for a night, and he kindly placed this evening at my disposal.

I was troubled to know what to call my report, but finally decided to let it go on the card as you received it.

(For Dr. Meriam's paper, see page 141.)

DISCUSSION.

President Cooke.—I am sure we all feel like thanking Dr. Meriam for the information he has given us. The question is now open for discussion, or rather the three subjects,—the matter of the extension crown, which seems to take the place of a bridge; the question of the gold solder, and the question of annealing steel.

Dr. Eames.—I saw only one of the casts that was being passed around, and that was the extension crown. I would like to ask Dr. Meriam in regard to the length of time he has tested this in use, and if, as it appears, the bicuspid rests on the gum tissue, and if it is easily maintained in a cleanly condition.

Dr. Meriam.—Entirely so, because it has a bell back; it is set in a cup that has a bell back, and while one rests against the gum tissue, it is no longer than the teeth at either side of it, so that it

is not forced up. I have no more expectation of trouble from it than I would from an ordinary ring on a lady's finger, and I think the principle can be carried farther. I think the mouth will tolerate a small gold wire that rests firmly on the membrane, as long as that wire is not irritant and is not movable. When we see what the mouth will tolerate in the way of plates, we are justified in believing that an appliance of this kind will not cause trouble until we see it, and you will see that all parts can be reached with the brush. It is not only clean, but it is bright in the mouth, and I think it has been there about three years.

Dr. Smith.—I simply wanted to ask Dr. Meriam about what I did not quite understand in the description of this bridge. I understood him to say one of the bicuspidis is not attached to a root.

Dr. Meriam.—Neither of them is attached, though there is a root in one case. The end of the root is filled with gutta-percha, and the crown, having a cup or ring at its base, rests against it. On the other side of the cast you will see the same principle carried out, except that in that case there is a loss of the alveolus which is protected by this cup.

Dr. Smith.—And the porcelain takes the place of that loss?

Dr. Meriam.—No; merely rests against it. The second molar carries the tooth, and there is very little pressure on the gum.

With reference to the model which you see here, something like sixteen years ago this lady came wishing to have all her teeth out. I had a talk with her, and I have had the care of her teeth since. I did an operation of this kind for a lady patient about five years ago, and when I sent my modest bill the check came back with a note,—“If you had charged me one thousand dollars, I should have called it cheap, but I never could have paid you.” This case has a band put on that is supported by the buccal and palatal walls only, the tooth being badly decayed; the tooth was then filled with amalgam. This case I had to repair: I simply sawed the band in two, removed it, repaired the case, soldered the band together, and replaced it.

Dr. Werner.—Is the band on the molar which you first referred to cemented on?

Dr. Meriam.—No, with gutta-percha and oil; but both teeth are conical, and it can be forced up tightly.

Dr. Werner.—The ordinary filling gutta-percha softened with oil?

Dr. Meriam.—Yes; softened with the oil of sassafras, which is rather pleasanter to the taste than some of the others.

Dr. Werner.—I would like to ask for information, how much articulation,—how much force,—do those cases, in your experience, bear well?

Dr. Meriam.—Only their share, the normal force required of a tooth in a certain position. You will see the force with which the patient eats, from the fact that all the incisors are worn.

Dr. Banfield.—If Dr. Smith will remember, I think Dr. Shaw took in one or two cases of that kind in which he used some such appliance as this bar going around another tooth. I am quite sure he had at least one case in which he used it.

Dr. Smith.—I don't remember it.

Dr. Andrews.—I would like to ask Dr. Meriam what kind of a file that is, and whether they have them finer cut?

Dr. Meriam.—It is called a "crossing" file, and I suppose it is not now used much, as they have machinery for the same work, although they are regularly listed in foreign lists. I think Dr. Lord has had to order them made abroad, and I suppose there would be no difficulty in getting just what you wanted. Abroad they have not the large spirit we have here, and I should say there would be no difficulty in getting a half-dozen files like this, or finer, or coarser, made at a very moderate price.

Dr. Potter.—I fell in with Dr. Melotte, of Ithaca, N. Y., this summer, and I was a good deal interested in some things he had to say. One remark he made was this: "If my office was burned down and everything destroyed, and I was about to equip another, the first thing I would buy would be a machine for rolling plate, and I would build up around that my whole outfit." That showed his idea of the importance of being able to work metal.

I learned from Dr. Melotte that he was not in the habit of using solder for uniting the bands of crowns; he brazed the metals together, in order to keep the metal pliable at the joint. His method of changing the shape of thin corundum wheels, such as are used to trim crowns in preparation for fitting bands, was of interest. This was accomplished by revolving the wheel in the engine and holding against the wheel an orange-wood stick. Sufficient heat is developed to soften the wheel and allow its being spun into any desired shape.

Dr. Werner.—Do I understand that this process of annealing in a test-tube is original with Dr. Meriam?

Dr. Meriam.—I have never heard of it, nor been able to find record of it.

Dr. Werner.—Then of course we ought to be and are very glad to know of it, and to have it go on record now. We do not want somebody by and by to patent it and make us pay a royalty on a simple way of annealing steel. If we can anneal, reanneal, temper, and retemper our fine instruments, such as broaches and nerve-canal finders, in this practical way, then Dr. Meriam is entitled to our heartiest thanks for teaching it to us.

Dr. Gillett.—If I understand Dr. Meriam rightly, perhaps the main advantage he claims in the manufacture of his own solder is the toughness he gets over solders that he purchases.

Dr. Meriam.—I like to know what I am using. I like the elastic quality in solder; when it is somewhat malleable I do not think it is as likely to break. Then I like a great quantity of solder. I do not like a little pennyweight, which you can hardly find, but I like a long sheet from which I can cut off and use as much as I wish. I also like the exact formula by which you get an exactness of color. Another question is the element of expense. I remember, in my last melting of gold I figured up the cost, and there were twelve dollars saved. For instance, my trade with the shops would be about on this basis: you sell your gold scrap at one dollar; any new gold bought from them would be estimated at about one dollar and ten cents.

Dr. Gillett.—Do you have your solder made by the same metal worker who makes your plate?

Dr. Meriam.—I go to any good refiner and give him my formula, as a physician would a prescription; he follows my directions, and I get exactly what I want. I also take my plate scraps and have those made into plate, but it is not all made according to one formula. There are cases, for instance, where the gum is very much receded, in which I prefer to use a stiffer gold and take more time; that will hold its edge there better than the plate which I use the most of. I use foil scraps for my solder, first having all foreign matter removed, especially the tin. You will notice this smaller crown has a double ring, one ring inside of the other, and the two soldered together; and perhaps you can see how well the solder works there.

Dr. Werner.—Are those flexible burnishers which you showed us on the market for sale?

Dr. Meriam.—I do not know that they are. Those that I have

here were made in the laboratory just a few weeks ago. As I have said, the temper in them was obtained by the use of the hammer. They have never been heated, except for drawing the temper and bending.

Dr. Werner.—They seem to be very nice shapes, and we would like to have them go into the trade, the same as some other good things you have given us.

Dr. Smith.—Before adjourning, I would like to say that it has been a great pleasure to me, as I know it has to all of you, to hear the voice of Dr. Meriam teaching us—as he always does teach us—something new, and I would move that a vote of thanks be extended to Dr. Meriam for his very interesting remarks this evening.

Unanimously voted.

WILLIAM H. POTTER, D.M.D.,
Editor American Academy of Dental Science.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A MEETING of the Institute was held Tuesday evening, November 1, 1898, at the office of Dr. George S. Allan, No. 51 West Thirty-seventh Street, the Vice-President, Dr. C. A. Woodward, in the chair.

The minutes of the previous meeting were read and approved.

COMMUNICATIONS ON THEORY AND PRACTICE.

Dr. George A. Wilson read the following communication from Dr. George L. Parmele, of Hartford.

"GENTLEMEN,—Over one hundred years have passed away since the first dental operations were performed in America,—probably thousands since ancient races in Central America, drilling the teeth with reeds and sand, inserted inlays of jade; nearly sixty years have departed since at Baltimore the degree of Doctor of Dental Surgery was given to the world, and thirty years since the degree, the abbreviation for which is D.M.D., was conferred by Harvard University, and later by the University of Minnesota. We have now in the United States in the vicinity of twenty thousand dentists, and dental colleges galore; so, surely the time has arrived when it may be proper to call attention to the fact that,

as a rule, the abbreviations for these degrees do not appear in the dictionaries, although many others, less commonly employed, do. I have examined the best authorities, which I am told are the following:

"*Century Dictionary* gives D.D.S., but not D.M.D.

"*Webster*, edition 1890, gives 'D.M.D. (Doctor Medicinæ Dentatis), Doctor of Dental Surgery' (?), but it does not give D.D.S.

"*Worcester*, edition 1865, gives neither.

"*Standard*, edition 1896, gives neither.

"I was told that I might find them in 'Hill's Annual,' but search failed to reveal them. Can we as a scientific body do something to place ourselves on record on this point?"

Dr. S. A. Hopkins.—I have been informed that the Century Company is now making a supplementary edition of its Dictionary; so that if anything is to be done, now is the time to do it. They are not to change the plates of the original, but they will publish a supplemental edition containing the omissions of the original.

Dr. J. Morgan Howe.—I move that a committee be appointed by the chair to take this communication into consideration.

Carried.

The Chairman.—It is an unexpected pleasure to announce that we have among us Dr. S. A. Hopkins, of Boston, who has something of interest for us.

Dr. Hopkins.—Mr. President and Gentlemen, I have here a few cultures of chromogenic, or color-producing, bacteria that have been taken from the human mouth. So far as I can learn, most of these forms have not been as yet described, and yet they are not very uncommon. This work on chromogenic bacteria is incidental to other lines of study. It does not bear, perhaps, any very clear relation to our clinical work, but it may be interesting to you to hear about these things, as they cause a good deal of the discoloration which takes place in the mouth, and because they are not described in the usual authorities. Of course, my bacteriological work was undertaken with the idea of studying the pathogenic forms, those which produce the various diseases of the mouth, but these chromogenic forms came cropping up in such numbers that it was impossible to neglect them.

I have brought with me only those forms which are yellow, or might be classified under the yellow head, with the exception of the prodigiousus, a form with which you may be familiar. I have isolated from the mouth twelve different forms of chromogenic

bacteria which produce the yellow color, and I think at least eight of those forms have never been described.

This one, marked "No. 1 A," is a bacillus, which stains readily by all the aniline stains, and has shown slight pathogenic properties. Inoculated into a guinea-pig it produces a certain amount of pus, but it does not kill the pig; it is probably harmless in healthy mouths.

"No. 1 B" is a short motile rod, which grows both in the incubator and at the room temperature, does not produce spores, and does not liquefy gelatin. This came from the same mouth that the first form came from.

This one is a yellow coccus without pathogenic properties, a common form, which has been described before.

This test-tube contains a form which was rather interesting because it was very much like the *staphylococcus pyogenes aureus*, which produces large abscesses when inoculated into guinea-pigs, and is probably responsible for many abscesses in the human subject.

This form is not the *staphylococcus pyogenes aureus*, because it does not coagulate milk and does not stain by Gram's method. It is interesting because it was taken from a woman about to be confined, and I found that it killed a guinea-pig in about forty-eight hours with rather violent symptoms and a good deal of diarrhoea. I rushed around to the woman's physician and told him the facts of my discovery, feeling that he ought to be informed. He exclaimed, "I wish it would have the same effect on her; I have been giving her quarts of laxatives, and I cannot get the slightest movement of the bowels." It does not always follow that a form that is pathogenic for lower animals is necessarily so for human beings. This woman is still in perfect health, though her mouth always contains this form.

Here is another one. This is rather a beautiful mass; this coccus form is seen very often on the teeth at the margin of the gums in mouths that are not well cared for.

Here is another form which approximates the one I have just given you.

This form is interesting from two points of view,—first, because of its variable morphology; and second, because of the fact that it does not grow at the body temperature; it grows very well at the room temperature, and will develop a considerable growth at a temperature of 28° F. That was exceedingly interesting, be-

cause it was undoubtedly a mouth form. I found it first in one mouth, three months after in the same mouth, and again, a year later, in another mouth. It is not, perhaps, a common mouth form, but it is interesting because it does not grow at the body temperature and will develop even when the temperature is below freezing, which seems peculiar for a mouth form. It points perhaps to the habit of mouth-breathing. It is also interesting because its morphology is exceedingly variable. It grows from a rod form to a form which would readily be taken for a coccus, and from the coccus form to an unmistakable rod. The rod form is best obtained by cultivating on potato, while the coccus form is acquired when cultivated on old dry blood serum tubes. I have given the name of "*Micrococcus Subnormalis*" to this bacterium, and if any gentleman wishes to know more about it and will send me his address, I will gladly send him a little brochure on the subject.

Here is another culture, a beautiful rod. I think this is probably the bacillus aureus, although the descriptions in the books are so confusing that it is not quite possible to determine.

These are also forms without pathogenic properties.

This No. 12 has certain pathogenic properties. It produces pus when inoculated into white mice.

Here are some forms which I have recently found and not yet classified.

This is the bacillus prodigiosus, with which I think you are all familiar. It is a large rod, as you know, and at one time was prevalent all over Europe. In this bacillus we find the explanation of the miracle of the bloody bread which astonished the credulous and excited faithful worshippers all over the continent of Europe. The bread was exposed in the cathedrals, and after twenty-four or forty-eight hours had passed, by reason of the growth of this bacillus prodigiosus, it appeared red upon the surface. This color was supposed to be produced by the blood of Christ.

Dr. George S. Allan.—With the exception of a monograph by Dr. Miller, of Berlin, published two or three years ago, on the pathogenic bacteria of the mouth, I know of no other article obtainable on the subject, and this only briefly refers to the chromogenic bacteria of the mouth. These cultures are certainly remarkably perfect and show the characteristic appearances, including color of the growing bacteria *en masse*—mixing beautifully.

While I must confess my ignorance of the subject, I rise to thank the doctor for bringing on and showing us the results of his careful work. Of course, we all recognize the fact that while caries of the teeth is undoubtedly of germ origin, none of the so-called chromogenic bacteria have anything to do with the decay of the teeth.

Dr. Hopkins.—It is perfectly possible to produce decay artificially, but, so far as I know, nobody has been able to do so with pure cultures.

Dr. W. H. McCutcheon presented a paper entitled "Two Cases of Diseased Antrum."

(For Dr. McCutcheon's paper, see page 163.)

DISCUSSION.

Dr. Charles O. Kimball.—I only rise to call attention to the suggestion made at a meeting of the Institute some two or three years ago by Dr. Dawbarn. He suggested that in these antrum cases, instead of removing the tooth we should go high up under the lip and reach the antrum above the root of the tooth, through the external wall of the antrum at its lowest point, where the bone is very thin. He said he had practised that himself, and it had proved very successful, not interfering with the teeth in any way, affording perfect drainage, and being more easily kept clean than when the opening was made in the customary way through the socket of the tooth.

Dr. E. H. Raymond.—These cases are exceedingly interesting to me, because I have had some experience in treating antral diseases. Examination of a number of skulls will show that roots of the superior bicuspids and the molar teeth often penetrate the floor of the antrum. If the pulps of these teeth die, you know what to expect. If we bore from the side, it will, it seems to me, be difficult to get perfect drainage, remove the cause of trouble, and get the antral cavity clean, except in special cases.

In 1894 a young lady, living in Connecticut, had been ill for nearly a year, and the physicians failed to discover the cause of her illness. Her friends sent her to the city to consult a specialist. I referred her to Dr. Abbott, but she asked me to do what I could to relieve her. She had lost about thirty pounds in weight. I diagnosed the case as "antral disease." As she had had a second molar extracted some months previous to her coming to New York, I drilled through this space into the floor of the antrum. I used

cocaine freely, and gave her scarcely any pain. It was necessary to open the windows when I got through. After syringing freely with warm water, I used listerine. I then gave her a syringe, with instructions to use diluted listerine three times a day through the opening, and to report in a week. She reported having had a good appetite, refreshing sleep, and felt herself to be a new creature. She has never had a recurrence of the trouble, and her health was soon re-established.

I have treated several cases since with the same gratifying results. Removing the cause of the trouble and getting perfect cleanliness is all that is necessary in order to restore normality, in most cases.

Dr. S. E. Davenport.—I consider that Dr. Raymond was very fortunate in that his patient had lost a tooth, through the old socket of which he was able to drill and get proper drainage without the responsibility of causing the patient to lose a tooth. I was very much interested in Dr. McCutcheon's reports. It seems to me that he treated the pathological conditions with skill and certainly with success, but I feel like commiserating with him upon the apparent necessity of extracting so many teeth. Dr. Dawbarn, who was kind enough to demonstrate upon the cadaver many little things for us a year or two ago, and to whom Dr. Kimball has referred this evening, rather overturned our ideas of general surgeons practising so-called oral surgery, for our experience in past years with general surgeons in such cases has been that the gentlemen operating did not seem to consider teeth at all; they seemed to look upon the teeth as simply pegs in a hole, which it was well to get rid of for the sake of the hole, which would thereafter be useful; neither did they appear to care about the expression of the face after they had finished, so long as they had cured the trouble. But as I have said, Dr. Dawbarn showed us upon the cadaver the very best point by which to reach the antrum, the thin wall, and the lowest point of the antrum in many cases. It is most interesting that a general surgeon should encourage the retention of teeth by showing dentists a way to reach and properly drain the antrum in these cases, and, perhaps, I may be forgiven for adding that it is deplorable that dentists are so easily persuaded, when pressed by patients, to extract teeth for the treatment of this trouble.

Dr. Howe.—I would like to say that from my observation antravary very greatly in size and shape. I have had a case of em-

pyema of the antrum, associated with a lateral incisor, and I entered the sinus through the socket of that tooth. Our chairman told me several years ago of a case in which he entered through the socket of a third molar. I suppose that the best place to open into the antrum may be different in different cases. A seriously diseased tooth and socket may make the loss of the tooth necessary, and in that case the socket of the tooth may be the best place for us, under the circumstances, to make the opening.

Dr. R. H. M. Daubarn.—I am very sorry that I was not able to come, as I meant to, in time to hear the paper of the evening and the points which were brought out. I would say that the way in which I determine where I shall penetrate the bone is by the use, almost always, of the electric light. It is called a "Mignon" lamp, being not much larger than a pea; it is to be put into the patient's mouth in a dark room. The general effect, as to the appearance of the patient's face while the light is burning, is that of a "pumpkin lantern." On the unaffected side it lights up the face beautifully by a somewhat triangular spot of light, nearly an inch across, below the orbit. This can be seen with ease for many yards; but on the side in which the antrum is filled with a new growth or with a turbid fluid, the face will be dark. Now, it is commonly true, though not always do we find the rule hold good, that the anterior edge of the antrum about corresponds with a point a little behind the canine and goes back to a point a little in front of the last molar. It is most closely in relationship with the first and second molars. Should we have an anomaly, the light will indicate the limits of the antral cavity, wherever they may be. It is a fair assumption that if you find an anomaly as to the position of the antrum on the light side, it is likely to be duplicated on the other, or dark side, and you have a good guide in that way.

It seems to me that there can be no question that the old-fashioned method of ruining one of man's best friends, a tooth, even partially sound, for the purpose of entering the antrum ought to be given up. The method of going up through the socket is archaic; it has several disadvantages in addition to the loss of the tooth. One is that you are going through a considerable amount of bone in the alveolar process in order to enter the cavity, and therefore cannot so thoroughly examine the interior of that cavity as you should, and you cannot easily make so large an opening as may at times prove necessary. I am regularly in the habit of

making an opening nearly as large as the end of my little finger, and you cannot do that without the loss of a good deal of valuable bone if you go through the socket.

Again, if you go up through the socket, then in the act of chewing you tend to force food up into the cavity by direct pressure, whereas if you go in above the alveolar process, the lip protects the opening in the act of chewing, and it is easier for the patient to avoid passing food into the cavity.

Again, the bone above the alveolar process, which is the front wall of the antrum, is almost as thin as paper. It is therefore penetrated here with the utmost ease by the first tap of your chisel. It seems to become even thinner in old age.

I use a short drainage-tube of soft rubber in the cavity, the outer edge of which is attached by a suture to the periosteum; and at least once a day, and better oftener, have the antrum washed out, which can readily be done, if need be, by the patient himself, the fluid in this way passing in at the surgical opening and out at the natural one,—the middle meatus of the nose. In the majority of cases peroxide of hydrogen is used,—a neutral solution, diluting, if it proves irritating, with boric acid solution; you will thus very quickly bring such a suppuration to an end. But if the discharge continues for a considerable period, without any obvious tendency to diminish, then you can make up your mind that there is something more serious at fault,—the disease has invaded the bone itself. You may then have to enlarge your opening and gouge or chisel away the diseased bone. A cavity of that sort is gently packed with a long strip of gauze of some kind,—aristol or nosophen gauze, or one of the silver gauzes,—which is changed daily or on alternate days.

I do not know what points you wished me to touch upon, and these upon which I have spoken are simply practical matters of personal experience.

Dr. Allan.—Most dentists in treating diseases of the antrum attempt to wash out the cavity with a syringe that has not enough capacity. Several years ago I got up this syringe, and have used it more or less since then, and even this, though it has a capacity of about two ounces, I do not think is large enough in some cases; at least it is none too large. I have several nozzles, and have found it very useful. This smaller nozzle I had made on purpose to get into the antrum through the socket of the wisdom-tooth.

I had one case of this kind which I thought very rare, having

been taught to get into the antrum through the first or second molar or the second bicuspid, and it proved to be a troublesome case. There was no disease or trouble of any kind till the wisdom-tooth had been extracted, and then within two weeks the trouble appeared. There was never any large amount of pus, but it was several years before a final cure was effected.

I have a disarticulated skull that is of considerable value, for it shows that the socket of the wisdom-tooth penetrates the antrum. It appears, then, that one can look for antral trouble from any tooth back of and including the lateral incisor.

Dr. Dawbarn spoke about the clinical value of the electric lamp in such cases. I never have used it, but I can see its value and importance. This small electric lamp was brought to me the other day. It is certainly a most powerful lamp for its size; it is hardly bigger than a pea-point, and it has a special value in that it can be put into either of the nostrils and you can look through from the palate. It is worked by five dry cells, which, as you know, are very cheap, and I should imagine a battery of five would last a long time. Dry cells are, of course, the most economical way of obtaining a current for these purposes.

Dr. G. G. Platt.—I have to ask for information. The remarks have been very interesting to me. I have in my time met with some very trying cases, where I was positive that the root of the molar pierced the antrum. I am not anxious to sacrifice teeth, but in one case, that of a lady, I opened the tooth and got some discharge, but not sufficient to give relief. I then extracted the tooth, and immediately pus followed, so that I, too, had to open the window. Now, in that case, was it not advisable to take the tooth out?

Another case, that of a man who was treated for catarrh. The tooth was extracted, and in a few days, perhaps a week, by syringing, it healed, the discharge from the nostrils ceased, and he has had no catarrh since. In that case, from the appearance of the root, I am sure that it pierced the antrum.

The Chairman.—I notice that Dr. Dawbarn has brought something with him.

Dr. Dawbarn.—The bottles that I have brought have neither of them any bearing on the subject at hand. The first one was brought at the special request of Dr. Cook; and if you think this is inopportune and wasting your time, please say so, and he will not do so any more.

This was an appendix vermiciformis, perforated by a large white pin which had been swallowed by a nursing baby, and was in the interior of the child for five weeks, and at the end of that time it killed the child by causing appendicitis. I was called in, after septic peritonitis had developed, and was unable to save the baby's life. The pin, though originally white, shows now the characteristic smooth, black tarnish which iron takes on when exposed for a long time to the action of living flesh. The father assured me that he saw the pin in the child's mouth and that the pin was white. There are deposits around it of calcareous material. In all my appendicitis work this is only the second case where there was a true foreign body found. The other was a case of swallowing a small piece of bone. Almost invariably the contents prove to be hard faeces, sometimes of stony hardness and capable of taking a polish. Again and again we see material resembling in shape and color lemon-pits, orange-seeds, date-stones, etc., and in almost every instance it is nothing but faeces, as immersion in boiling water quickly proves. The idea that seeds are other than excessively rare as a cause of appendicitis is an unfortunate one. A member of this society told me some time ago that he had never swallowed grapes because they caused appendicitis. I told him I did not believe there was a case on record where grape-seeds had produced appendicitis.

Here, in this other bottle, is a rather interesting thing. It is a demonstration of an idea as to the best way of keeping needles and other small instruments that annoy us by rusting. I have taken the trouble to interview almost every member of the New York Surgical Society as to how he kept his needles, and I have made a list of ten different methods. Hardly any two keep their needles in the same way. For instance, a number of them, a majority, I think, keep them sewn into a piece of cloth that is greased; some keep them in alboline, which is only objectionable because oily; some keep them in dry powder, talcum for example, the objection to this being that you have to go fishing for your needles, which are hidden in the powder; some try to dry the air in which they are kept. I have tried that without any satisfaction. I have put a little jar of chloride of calcium near the needles in an air-tight case, and in a few days, as we all know, it will melt down to a syrupy liquid, meanwhile absolutely drying the air about it. Professor R. Ogden Doremus once told me that if one had a piano at the sea-side, the dampness would affect it very quickly;

and at the sea-side hotel where he stayed he had once used this plan very effectively, placing this chemical within the piano for forty-eight hours, and meanwhile keeping it wrapped in blankets. He said the tone was for a time fully restored. I tried it for needles, and it did not work; the needles, lying near at hand, did not rust, but took on a peculiar tarnish and ceased to be bright. Another method is to keep them in lysol, but this is turbid, and you cannot easily see the needles; like carbolic acid, too, it has a tendency to blunt the edge of the instruments, but upon frequent opening of the bottle this absorbs water from the air. Some keep them in absolute alcohol; a French surgeon, M. Marechal, some time ago, wrote an article recommending a solution of borax and water; on the strength of his reputation I put some needles in the borax solution and ruined them. A surgeon who was formerly in the navy told me that he used to touch his needles with a little brush dipped in compound tincture of benzoin, and said that if sea-going surgeons would use that on all their tools they would have no trouble. I should imagine that might be so, but it is distinctly a bother.

We have known for years that, in sterilizing our instruments, the cheapest, simplest, and best way is to boil them with a little washing soda, say one per cent. Now, it occurred to me that we might be equally fortunate in keeping our needles in cold water if it were saturated with washing soda. I put some needles in such a solution,—ordinary washing soda in water,—and these are the same needles. I took a knife and carefully scraped off the plating of one of them; the other has the ordinary plating, and you can see that they are as silvery and bright as the day I put them in, more than a year ago. I think I can claim that the method is a success. It might be a convenience, also, for dentists, as a means of preserving their smaller implements free from rust.

Dr. Elliott.—I am very glad that Dr. Dawbarn has brought this matter up; at the same time, I do not think it is particularly new. For many years the Coast Survey of the United States has used wire for its deep-sea soundings; this wire is always kept in a tank of water which is saturated with carbonate or washing soda. Many years ago I used it in every-day practice. I even tried to use it in keeping the right angle of our engine clean, for it is apparently impossible to stop its rusting. I have kept it in a solution of soda, but there is an objection: the oil which is in the right angle—and has constantly to be present there—immediately saponifies

with the soda, and you get a soap which is rather disagreeable to the patient.

Dr. Daubarn.—I am very much interested in this comment by Dr. Elliott, and in publishing this little suggestion I shall of course incorporate his statements, which certainly substantiate still further the value of the plan. I think it is not known among our New York surgeons. I am reminded, however, of Solomon's saying, "There is no new thing under the sun."

Dr. Raymond.—It is quite remarkable to see how a foreign substance like this pin could get as far as the appendix before giving trouble to the little patient, owing to the convolutions of the alimentary canal through which it passed. It brings to my mind a case that caused considerable alarm in my own family. A daughter, about thirteen years old, swallowed a peach-pit while trying to laugh and eat at the same time. My physician suggested that she be fed on the inside of wheat bread, so as to have the gluten form a coating around the pit to assist its easy passage through the canal. She was allowed to eat very little except oatmeal with this bread for six days, at the end of which time the pit passed, being black and slimy. In addition to the bread and oatmeal, I gave her a little sweet oil daily, thinking that might assist.

Dr. Daubarn.—In a little child the duodenum is so small that one might very well worry under such circumstances. I think that the treatment was entirely a proper one, except that I do not see any object to be gained by giving the oil, which would tend to soften up the portion of feces or food around the pit and enable it to be brought roughly or directly in contact with the wall of the intestines. The usual method is to feed the patient upon potatoes, or other starchy food, and to allow him to remain constipated and let the foreign body go through as slowly as may be. In the case of the child to which I have referred domestic medicine was tried, and the family did not ask a doctor's advice until too late. I am told that they gave the baby a laxative, which is in such a case a dangerous thing.

Dr. S. C. G. Watkins.—While this subject is up, I might mention a couple of cases which created considerable interest in my vicinity some years ago. One of them was the case of a child which had convulsions, and the doctors were at a loss as to the cause, although at times the child had been in the habit of putting buttons in its mouth, and they were fearful that it had swallowed some of them. After receiving proper treatment the child passed

over twenty articles,—shoe-buttons, brass buttons, safety-pins, straight ordinary pins, hairpins, and other things of that nature; yet lived and was well and healthy afterwards. That was in the city of Orange.

The other was the case of a young lady, who swallowed a twenty-dollar gold piece. It caught part way down her throat, but the physicians could not remove it, and so they punched it down, and in about a week it passed all right.

Dr. F. Milton Smith presented a paper on “Root Treatment: A Positive Method.”

(For Dr. Smith’s paper, see page 152.)

Dr. Allan.—Dr. Smith, if I remember rightly, said there were some roots he did not attempt to fill. He neglected to tell us what treatment, if any, he gave such roots and got into and cleaned them. I would like some information on this, to me, important matter.

Dr. Hopkins.—I think that is the best essay on the subject that I have ever listened to, and I am glad to be here. I think it is especially good because of its force and thoroughness. I rather think that in the thoroughness of the author lies its great success. I was going to say that possibly a scientific light might be thrown on the subject in this way. Bacteriologists agree that most of the forms which produce pus are aërobic and require oxygen; that a tooth that is thoroughly filled, as we can imagine it filled by the essayist, would pretty thoroughly exclude the pyogenic forms because of the lack of oxygen; it is also well known that the drying of the cavity as thoroughly as he indicated would be a tremendous safeguard even if no antiseptic were used.

Dr. Platt.—My point was this, that in a very few days after the doctor had treated the tooth, he kindly sat down and wrote me, giving me his mode of operation, and I have found that where I thoroughly and conscientiously carried out the rules laid down by him I have had perfect success; my faith has been rewarded every time.

Dr. Davenport.—The time is so short, I feel that somebody ought to be speaking every moment that is allowed us. I wish to thank Dr. Smith most heartily for his paper. I consider it rather unfortunate that it should come so late in the evening, rather than as a text for an entire evening, and I hope sincerely that the matter will come up for discussion at some future meeting, because I feel sure that all our guests and members are anxious to say a word

upon this subject, which is never completed, and upon which probably most of us could throw some new light. We are always pleased with the assertions of men who agree with us, and think them successful and scientific, and I would like to get in under cover with Dr. Smith, not quite to the extent that he has suggested to us to-night, for I have not had the necessary amount of courage to fill quite as promptly as he does, but I have never feared to remove mechanically as much of the *débris* as possible at the first sitting, and my practice has been to free the canals if possible when the tooth was first opened.

I wish to bring to the attention of the Chair this very important question, and to request that it may come up at another meeting, for I am sure there will be insufficient time this evening to discuss it.

Dr. Watkins.—I am glad of the opportunity to hear this paper, and I agree with Dr. Smith in many things he has said. There are a few points, however, in which I do not agree with him, and one particular thing is filling the roots at the first sitting; that I do not believe in. I do believe in removing every part of the *débris* that can be removed at the first sitting, but I would not attempt to fill the cavity at that time. In my opinion it would be much better to treat the tooth once or twice, allowing the medicament to remain for a week or ten days, and then fill the tooth, and in that way avoid the swelling which the doctor has told us about, which sometimes lasts for several days.

Then, again, the doctor said he would not enlarge the pulp-canals. I believe it is good practice to enlarge every canal with a Gates-Gliddon drill if the canal be not large enough for perfect access to treat or to fill; enlarge it as far as it can be enlarged towards the apical foramen. I do not believe in being satisfied with that enlargement which can be obtainable simply with a broach. I have not been successful in carrying the material in that way to the end of the root. I have never been satisfied that it could be done as well that way as if a drill had been passed along the canal.

Another thing: the doctor does not recommend the use of antiseptics until the canals are pretty well, or entirely, cleansed. I believe in using antiseptics from the very beginning, removing all the *débris* from the cavity by syringing with antiseptics and having the broaches and other instruments which enter the canals dipped in antiseptics, and thus prevent the possibility of carrying

bacteria into the canals. I agree with him most thoroughly in the use of carbolic acid. As I said years ago, if I could have only one medicine in my office, that medicine would be carbolic acid.

I do not see his object exactly in using bibulous paper for pressing gutta-percha into the canals. I would much prefer natural cotton, treated antiseptically.

The use of gold wire was mentioned also, which many years ago was a favorite method of filling canals by Dr. William Morrison, of St. Louis. His method of using was to taper a piece of gold wire to approximately fit the canal, make a nick about one-quarter of an inch from the end, and after pressing it up in the canal give it a twist and break it, leaving the one-quarter inch of wire in the canal. Lead has been used in the same way.

In working antiseptics into the canals I use a method which I first knew to be used a good many years ago by our friend Dr. James G. Palmer; it is by using a jewellers four-sided broach, and twisting a fibre of cotton on it to use as a piston, to pump the antiseptics to the end of the root, forcing them through the apical foramen.

The Chairman.—May we hear from Dr. Starr?

Dr. A. R. Starr.—I agree with Dr. Smith in regard to the advisability of filling pulp-canals immediately in certain cases, but not in all. I sometimes give my patients the choice of having the canals filled immediately or of waiting; telling them what the result is likely to be, and that they may have trouble for a day or two if the canals are filled at once. I believe in the thorough use of antiseptics before and during the operation of cleansing and filling the canals. I think, as stated by Dr. Smith, the application of the rubber dam is very essential.

I would like to say just a word in regard to antrum cases. I should have gotten up before, but I did not know that I had the privilege. I wish to say that the first case I had of diseased antrum came from a third molar. In the last case which presented itself to me for treatment nature had made an opening in just the location that Dr. Dawbarn has advised us to make it. This patient came to me with a swollen face, and presented the ordinary symptoms of alveolar abscess. Upon opening into the swelling I found, instead of pus, a sort of thin glairy mucus containing flocculi and some indication of pus. The appearance of the discharge led me to suspect necrosis, or some trouble with the antrum. Upon using the probe, I found the antrum open and could distinctly feel the

roughened extremity of a buccal root of the second molar protruding into the antrum. I enlarged the opening in the antral wall, amputated the diseased end of the second molar root, and then washed the cavity well with antiseptics. I saw the patient two or three times after the operation, and noted that the discharge kept diminishing in quantity, was not offensive, and the patient was free from pain. I have not seen him for about three months, but have heard that his mouth is perfectly comfortable.

Dr. Dawburn.—I would like to say that I, as a general surgeon with oral tendencies, have been very much interested in the paper, and that the essayist did himself an injustice when he accused himself of empiricism. Carbolic acid and chloroform are both very excellent means of relieving pain, as is well known.

Again, as to the use of the gold wire, I was a little surprised that the suggestion was not made to use silver wire instead, because of the fact that for the last two years silver has come very prominently to the fore on account of its antiseptic powers. We owe to Professor Crede, the German surgeon, this suggestion, but among the first to use it in this country was Professor Halsted, of the Johns Hopkins Hospital, who treats his wounds with silver-foil, and sometimes dusts them with metallic silver, powdered. It has been proved by experiments upon microbes that metallic silver in contact with microbes is attacked by certain of the toxins, probably of acid reaction, produced by them in their life processes and death decomposition, and is dissolved and makes a very poisonous compound; poisonous, that is, to the microbes, but not to the patient. It is thus possible that metallic silver might be preferable to gold. I do not know of gold having the same power.

Dr. Howe.—I approve very heartily of the suggestion that this subject should be made a subject for discussion at some future meeting when there is more time. Immediate disinfection and filling of roots was first suggested, so far as I know, by my distinguished friend Dr. Stockwell, of Springfield. I discussed the subject with him before the State society many years ago. I hope that it may be brought up for discussion at some time during the coming year.

Dr. Smith.—I will attempt to reply to my friend Dr. Allan first. As I understood his question, it was, "How do you proceed to clean out these fine roots that you cannot fill?" I distinctly said, I think, in my paper that I did not fill them. I will as distinctly say now that I do not mechanically clean them. I know of no

way to do it if they are as fine as that gold wire that I have to fill them with, and my experience has been that roots that are so fine that I cannot get into them with my finest broach do not often cause trouble. In cases when they do, and I cannot get to the end of them, I know of no way to relieve them except by going through from the outside and burring away the end of the root. Occasionally I have done this.

As to the strength of the carbolic acid, I use it as strong as it comes from the druggist, and protect the tongue and gums with vaseline and with pieces of bibulous paper.

Dr. Davenport suggested that it was unfortunate that the paper was read so late; it strikes me that the essayist was fortunate in reading it so late in the evening, since it left so little time for his annihilation.

Dr. Watkins has made one or two suggestions to which I should like to give a passing word; one is as to the originator of wire in root filling; I claim no originality for that. I do not know anything about who originated it. I did give Dr. Perry the credit of having suggested the use of gold wire; a hundred other men may have done the same thing. I do not know.

Dr. Watkins also suggested that lead had been used. I have so read, but I fail to see how it would be possible to draw out a piece of lead to the thinness of three-one-thousandths of an inch and have it of any service to go anywhere near the ends of these fine roots. It would not be of any use to me for the use to which I put the gold wire.

In reference to Dr. Dawbarn's suggestion as to silver wire, it seems to be a very apt one, and I am glad to hear it; if there is any virtue in silver wire I want to know it.

I thank you, gentlemen, for the way in which you have "tempered the wind to the shorn lamb" to-night, and I am glad to find that there are so many who come so nearly to my ideas in practice.

A vote of thanks was unanimously extended to Dr. Hopkins, of Boston.

Adjourned.

S. E. DAVENPORT, M.D.S., D.D.S.,
Editor The New York Institute of Stomatology.

Editorial.

DENTISTS IN THE ARMY AND NAVY.

THE appointment of dentists in the army and navy has been the subject of much interest for several years in the Columbian, American, and National Dental Associations, resulting in the matter being presented to Congress for its consideration. The dental profession in the United States has been made fully aware of the position the question occupies in the national legislature and the difficulties to be overcome before a bill can be passed. Not the least of these is the prejudice of army surgeons. These can have no real appreciation of the merits of the subject, nor can they, or the members of Congress, understand the importance of this to the army and navy.

The articles that have been written upon this subject have largely looked at the question from the selfish side, that of the interest of the dental profession. While its recognition has a value and worthy labor to secure, and while it would open the door to remunerative employment to a large number of young dentists, this cannot be considered of sufficient importance to demand attention from those having charge of the subject. The arguments brought to bear on the committee of Congress should, in the view of the writer, entirely set this aside, and whatever appeal is made should be upon the reasonableness of the request.

The dental profession, the world over, fully appreciates the importance of constant attention to the teeth, but this, unfortunately, has not been a part of the education of the masses. Great progress has been made in this direction in the last thirty years in this country, largely through the educating influence of the colleges, and the time is rapidly approaching when it will be considered as essential to have the mouth kept in order as medical care is, at present, in case of sickness.

Congress needs to have this idea enforced by solid arguments, for it is feared that too many of the members regard the average dentist as simply a "tooth-puller," and that this service can be as well, or even better, performed by the surgeon already installed in position. That this opinion is simply the outgrowth of appalling ignorance need not be affirmed, but that it exists in many minds

is clearly apparent, and will have its due weight in negating any bill presented with the object of placing dentists in the service.

It is presumed the able committee having the matter in charge has forcibly presented all sides of the argument in favor of the bill, but whether it has or not covered the entire subject, it is due to it that it should have the moral support of all the dental journals of the country.

It has been stated that the opposition to this measure comes mainly from the surgeons in the army and navy. They have the very natural fear that dentists will be made to rank with them, and this they cannot tolerate. In the opinion of one not specially interested, the surgeons of the army have not shown such remarkable ability during the late war as to arrogate to themselves all the knowledge and skill necessary for the comfort of the officers and men of the service.

The important work seems to be to educate the members of Congress, as well as the surgeons already in place, to the fact that the dentists of the United States are not seeking position simply to receive a share of the glory inhering to the latter, but that they are anxious that the officers and men of the regiments, composing the United States army should have that care that will make them more valuable to the service and enable them to continue in it for a longer time, more especially the men, than would be possible under present methods. "Toothache" there, means extraction until one by one teeth disappear and the man becomes practically edentulous. With a dentist in the regiment, all this could be avoided.

It is probably true that almost every dentist could retail some story of hardship, in this connection, given him by officers stationed upon the plains in former years. The writer has had his share of these complaints. A not unusual experience was of being forced to travel some two hundred miles to the nearest dentist, and that at a time when modern conveniences of travel were wanting. When it is considered that not only officers but their families need this care, it must be evident that a dentist, properly qualified, would not only be of ever-present value, but a saver of time to the government. The men of the regiment have not even this poor chance, but must suffer unnecessary tortures, for every dental practitioner knows that the large proportion of suffering from teeth is simply from neglect, and this can be remedied by skilful and, above all, prompt attention.

The indications are that the United States will be forced to keep large bodies of men in distant service. This, in some instances, means isolation, as at the Philippines. The opportunity there for dental service will be practically nothing unless dentists be placed as desired. The health and comfort of the men should be the first consideration of the government, and nothing can add so much to this as proper care of the teeth.

It is presumed that no attempt will be made, at present, to have dentists appointed for the navy, but this is equally important. While officers, in that service, can usually find experienced dentists wherever they may be stationed, the men have neither the means nor opportunity of availing themselves of this service, and neither officers nor men should be forced to meet this outlay out of their meagre salaries.

The education now given to students in dentistry is quite equal to that of medical students in our best institutions, and there is no reason for any prejudice based upon imperfect training.

Not having access to the bill, as prepared, it is not possible to judge of it in detail, but it is assumed that the committee having it in charge has carefully considered the importance of having the Board of Examiners properly constituted. It would be a gross injustice to have this consist solely of medical men. It should be fairly divided between the two professions.

It is certainly worthy of every effort to have this important matter fully considered, and whether it be accomplished now or at a later period, it will be in the interest of humanity, and must be urged upon the members of Congress upon that basis and upon no other.

THE FOREIGN RELATIONS COMMITTEE.

UPON another page will be found a partial report of the work of this committee. It comprises conclusions at which it arrived at its recent meeting at Cincinnati in regard to the Foreign Advisory Committee, decided upon at the last meeting of the National Association of Dental Faculties. It will be observed that this foreign committee has been only partially completed. It is presumed that the parties to fill the vacancies will be selected on or before the meeting of the Faculties at Niagara Falls in August.

The most interesting part of the work is outlined in the letters accompanying this. The energetic work of Dr. Barrett, chairman, has aroused the educational body in Illinois as never before. The press of Chicago has taken up this matter, and has denounced the whole business in no measured terms. The result must be that the Illinois Legislature will be forced, by outraged public opinion, to enact a law that will drive these fraudulent diploma manufactories from the State. The question is, What will follow when this is accomplished? Will these fraudulent dealers turn up elsewhere? This will depend upon the laxity of State laws, but it is presumed they will find none so favorable for their purpose as the constitution of the State of Illinois.

The dental profession and all educational institutions owe a debt of gratitude to Dr. Barrett for his work in unearthing these establishments in Chicago, for while efforts in this direction had been made previously, they seemed to amount to but little in arousing to active work. Much of this is due President Harper, of the Chicago University, who has entered into this labor with characteristic energy, and through his great influence has aided in rousing public opinion to an extent that, probably, without this might not have been accomplished so speedily.

From a private letter received from Dr. Barrett the following quotations are made. They forcibly give his views upon the subject.

"I wish to give you some additional facts.

"*First.* We have begun suit against about the worst of the fraud colleges. This we shall push as fast as possible. We think we have the necessary testimony.

"*Second.* We shall, we think, get the necessary legislation for the repeal of the bad Illinois law.

"*Third.* The committee of the Universities of Illinois has had a bill introduced in the Legislature of Illinois, but it is so drastic in its provisions that it bids fair to fail. Another that will be drafted after my ideas, and which will go no farther than it can without material opposition, will in due time take its place and will go through.

"*Fourth.* What we accomplish must be mainly done through legislation. The fraud college that we have commenced proceedings against has *eight* separate charters, each under a separate name. Of course, if beaten on one it will bring out another. You may say, then, What is the use in beginning suits when legislation alone can accomplish the end by reason of the repeal of the law under which these charters were issued? I answer that, (1) we must keep up the agitation. If nothing is being done to intimidate the work of issuing charters, this will still go on. We think we can stop that for the present. (2) If we do get legislation these suits

will be far enough advanced to get some of the men in prison, we hope. We shall not try to get a decision on them until the outcome of the efforts for legislation is reached.

"*Fifth.* I have said that the college that we have begun action against has eight different charters. It has openly offered for sale thirty-six different degrees, in Literature, in the Arts, in Science, in Medicine, in Dentistry, in Law, in Pharmacy, in Veterinary Medicine, in Music, and in Theology. In fact, they will manufacture and turn over to any one, while he waits, any known degree.

"The first open intimation of the existence of this state of affairs was given in my report at Omaha. You will see by some of the papers that this report awakened President Harper, and he used it in a circular issued to the presidents of Illinois and Western colleges and universities, read it in a public meeting, and sent it out broadcast and to members of the Legislature, or extracts from it."

The amount of labor given to this matter by Dr. Barrett can hardly be appreciated by those unfamiliar with such work, but the success of his efforts thus far deserves, and we feel assured they will receive, the earnest thanks of every well-wisher for educational purity and progress.



Bibliography.

ANNUAL AND ANALYTICAL CYCLOPÆDIA OF PRACTICAL MEDICINE. By Charles E. de M. Sajous, M.D., and One Hundred Associate Editors, assisted by Corresponding Editors, Collaborators, and Correspondents. Illustrated with Chromo-Lithographs, Engravings, and Maps. Vol. II. The F. A. Davis Company, Publishers, Philadelphia, 1899.

The first volume of this most valuable publication was reviewed in a previous issue. This, the second volume, covering subjects from "Bromide of Ethyl" to "Diphtheria," fully confirms the views then expressed. The work as it stands is probably without a rival in medical literature, and the two volumes now placed before medical readers indicate throughout that when the series is completed it will be the most valuable work of reference on medical subjects attempted in this generation.

The effort of the able editor, Dr. Sajous, has been to bring every subject considered fully up to the present period, and for this purpose he has availed himself of the aid of the best authorities on

special subjects. In illustration of this care, the following quotation from the preface of the editor will give an idea of the scope of the work and its value.

"The readers will have before them in this volume exceptionally valuable articles on a number of exacting subjects,—namely, 'Cerebral Hemorrhage,' by Dr. William Browning, of Brooklyn; 'Cirrhosis of the Liver,' by Professor Adami, of Montreal; 'Cholera,' by Professor Rubino, of Naples; 'Cholelithiasis,' by Professor Graham, of Toronto; 'Diabetes,' by Professor Lepine, of Lyons, etc. The better-known affections have also been edited by writers of special ability. Among the articles of this kind is that on 'Diphtheria,' by Drs. Northrup and Bovaird, of New York, who contribute a masterly review of our present knowledge of this affection from every stand-point; the papers of Professor Eskridge, of Denver, on 'Cataplexy;' Professor Bondurant, of Mobile, on 'Chorea;' Dr. Norman Kerr, of London, on 'Cocainomania;' Dr. Oliver, of Philadelphia, on 'Cataract;' Professor Nathan S. Davis, of Chicago, on 'Constipation;' Dr. Vickery, of Boston, on 'Dilatation of the Heart.'"

From the article of Dr. Norman Kerr, of London, the following quotation is made upon the treatment of "Acute Cocaine-Poisoning." Dentists are using this agent to a very great extent for various purposes, and oftentimes with a very limited conception of the risks taken, and, in the majority of cases, would be at a loss as to treatment. For such this instruction of Dr. Kerr should have a special value:

"If the poison has been swallowed, the stomach syphon-tube should be at once applied and the contents of the organ evacuated. The patient should be placed in a horizontal position on his back. Tannic acid, iodine, or charcoal may be given as possible chemical antidotes. Stallard advises the stimulation of respiration and circulation by flicking the chest and face with hot and cold towels, as in opium-poisoning; but I cannot say that I have seen benefit from this practice unless it has been done lightly and occasionally for a minute or two. Ammonia or ether inhaled, drunk by the mouth, introduced into the rectum, or administered hypodermically, is useful, as also is the administration of caffeine or coffee. The addition of small quantities of alcohol, in the form of five- to ten-drop doses of tincturæ cardamom. comp., spirit of chloroform, or tincturæ lavandulæ comp. (separate or combined), is sometimes serviceable when coffee cannot be easily taken. Chloro-

form may be inhaled to relieve the spasm. Strychnine, in minute doses (one-one-hundredth of a grain), with or without a couple of drops or so of tincture of digitalis, is also of value. . . .

"When the blood-pressure has been raised, or there is alarming respiratory spasm, a drop dose of nitro-glycerin of intervals of half an hour, if required, sometimes acts excellently. Clifford Allbutt says that the inhalation of oxygen and artificial respiration against the asphyxia may be indicated. I have found sips of hot water, and where this could not be taken by the mouth, on account of insensibility or collapse, hot water enemata, of three to four ounces, of substantial aid. External applications as hot as can be borne, such as bottle or jar, or tin filled with hot water and covered with flannel to protect the skin, I make it a rule always to apply, especially in unconsciousness, and, indeed, almost from the first."

Space will not permit allusion to the valuable articles in detail. The chromo-lithographs and other engravings admirably illustrate the text and add much to the beauty of the volume.

Dentists who feel that they cannot afford a library of medical works in addition to the many now published in their specialty, cannot do better than to add this Cyclopædia to their list of books. It will give them all they need in the way of reference, and will do for them, in a medical direction, what the Century Dictionary accomplishes for the literary or professional writer.

A DICTIONARY OF DENTAL SCIENCE AND SUCH WORDS AND PHRASES OF THE COLLATERAL SCIENCES AS PERTAIN TO THE ART AND PRACTICE OF DENTISTRY. By Chapin A. Harris, M.D., D.D.S. Sixth Edition, carefully revised and enlarged by Ferdinand J. S. Gorgas, M.D., D.D.S. P. Blakiston's Son & Co., Philadelphia, 1898.

To review a dictionary, if not the most difficult of tasks, is at least one in which there can be less agreement with the author and more room for criticism than in any other form of literature. Very few, it is imagined, when they refer to a dictionary, think of the labor spent upon every single word with its definition, the latter requiring much thought and careful arrangement to avoid confusing the meaning. This book is no exception, and that the compilation of words has been fairly well done is attested by the fact that the book has sold through five editions and has now reached the sixth.

Dental students require something more than a medical dictionary. They need and must have the definition of technical terms, not to be found in these to any extent. It is, therefore, not surprising that undergraduates, as well as dental practitioners, have turned to the Harris-Gorgas dictionary as a book best adapted to their needs.

While this is true, the dictionary is by no means faultless. The present editor, doubtless, has been handicapped in this and other works of Dr. Harris by the legacy left of much irrelevant matter that has become antiquated. This is apparent in many of the definitions which would be improved by a dress more in harmony with modern ideas.

This dependence upon the past is peculiarly noticeable in the definition of "Gums, Inflammation, Turgescence, Ulceration, and Recession of." Here a very lengthy dissertation is given upon what is, at present, known as *Pyorrhœa Alveolaris*, and the authority quoted is Koecker, who flourished in the earlier part of the present century. When the author comes to define *Pyorrhœa Alveolaris*, he refers to "*Alveolar Pyorrhœa*," and gives the reader but a paragraph upon the subject, and this does not describe the etiology or therapeutics in an understandable manner. The author may be justified in transposing the words comprising this name, but inasmuch as it is recognized in the ordinary form by all dental writers, and has been accepted by the Century Dictionary, it seems a waste of time for the reader, when hunting for *Pyorrhœa*, to be referred to another page of the volume.

The length of some of the definitions is very objectionable, many extending to several pages. This is an old evil and not confined, by any means, to this dictionary, but it is nevertheless an annoyance, when looking for a definition, to be met with a mass of verbiage that does not clearly define the subject.

While slips in proof-reading are not a legitimate subject for criticism, in a dictionary they may become a source of error in others. Reference is made here to the spelling of the word "bur." Most proof-readers are troubled when they first strike this word, as used in dentistry. Under the head of "Bur-Drills" it is spelt with one "r" while under "Drill-Burrs" it is spelt with two.

While there is much in this book not altogether satisfactory to the critical mind, there is also much that is good and which cannot readily be obtained elsewhere. It has, therefore, a value for students possessed by no other book, and can be cordially recom-

mended as a work well adapted for this class, and doubtless will hold a place here that cannot be filled by any medical dictionary.

The general make-up of the volume is in the usual excellent character of all the publications of the house of Blakiston's Son & Co.

Domestic Correspondence.

REPORT OF THE FOREIGN RELATIONS COMMITTEE.

[THE following partial exhibit of the work of the Foreign Relations Committee of the National Association of Dental Faculties will be read with interest. It cannot strictly be classified as a report, but it shows the deep interest this committee has aroused among educators in Illinois and also faintly outlines the energetic work of the chairman, Dr. Barrett.—ED.]

TO AMERICAN DENTISTS PRACTISING IN EUROPE.

At a special meeting of the Foreign Relations Committee of the National Association of Dental Faculties of America, held in Cincinnati, Ohio, December 27, 28, and 29, 1898, in accordance with the instructions given at the annual meeting of the Association, held in Omaha, Neb., August, 1898, certain of their *confrères* living in Europe were appointed to form the nucleus of an advisory body, the membership of which it is their purpose to increase to the number of three for each of the principal countries of Europe, as soon as they shall become thoroughly convinced as to the best manner of organizing such Board, and fully informed concerning nominations for membership therein.

The Foreign Relations Committee feels itself restricted in its action by the instructions given it by the National Association, and cannot at present clearly see its way to do more than to lay the foundation for future more comprehensive action. It believes that any precipitancy on its part, in the absence of a full and clear comprehension of the exact status of American dentistry in Europe, might do great injury to the cause of American dental education, and prejudice us greatly in the eyes of foreign professional men. The members also realize that until there is a better understand-

ing of professional affairs in Europe by Americans in this country, it would be easy to injure our colleges by creating a prejudice that would be baseless and unjust. No possible harm can result from the exercise of great care, and even from delay, on our part in the completion of the appointment to this Board, while radical action in the absence of definite knowledge would be certain to work evil.

Hence the Committee has not felt itself justified in doing more at present than to make a few appointments that are entirely unopposed, and to go no further than to commit to such members of the Foreign Board the responsibility of examining the credentials of students making application from foreign countries for matriculation in American dental colleges, the advising of the Foreign Relations Committee of the requirements demanded for practice in such countries, the number, names, and professional status of the holders of American dental degrees abroad, and the giving of such other information as may prove of benefit to the National Association of Dental Faculties. For the information of such Foreign Board the Committee has unanimously adopted the following expression of opinion:

First. The proposed Board shall be known as the European Advisory Board of the Foreign Relations Committee of the National Association of Dental Faculties of America.

Second. Its objects shall be to ascertain the standing and reputation of institutions in foreign countries giving instruction in dental subjects, the character of instruction imparted, the different courses of study, the length of term, the requirements for admission, and the form of certificate given entitling the holder to practise dentistry in such foreign countries.

Third. To examine the certificates of Europeans who purpose coming to this country to complete their dental studies after a course more or less complete abroad, to report upon the value of such certificates, and how much credit should be allowed them in American dental colleges as a consequence, and to communicate to the Chairman of the Foreign Relations Committee any further facts that may serve as a guide to the deans of American dental colleges in the reception and proper assignment of such students.

Fourth. To furnish the Foreign Relations Committee with the names of such persons as may have come, or who may purpose coming, to the United States for professional instruction, and whom they may believe to be unworthy reception in American colleges, with the facts upon which such belief is based.

Fifth. To obtain for the Foreign Relations Committee, as far as is practicable, a complete list of all American graduates practising in Europe, giving names of the schools that issued their diplomas, together with date of graduation and the general reputation and status of such graduates.

The Foreign Relations Committee desires explicitly to say that while it is not authorized to extend the scope of its present action, and deems it unwise on its part to go further in defining the duties of the European Advisory Board, it is heartily in sympathy with American dental graduates abroad in their efforts to obtain a due recognition of the American dental degree in Europe, and pledges itself, whenever it believes the time is ripe for definite action, to take any steps which in its opinion will tend to bring about so desirable an object.

The Committee desires to announce the following appointments to the European Advisory Board:

Great Britain, Dr. W. Mitchell, London; Holland and Belgium, Dr. J. E. Grevers, Amsterdam; Denmark, Norway, and Sweden, Dr. Elof Förberg, Stockholm; Russia, ———; Germany, ———; Austria and Hungary, ———; Italy and Greece, Dr. Albert T. Webb, Rome; France, Dr. J. H. Spaulding, Paris; Spain and Portugal, ———; Switzerland and Turkey, Dr. L. C. Bryan, Basle.

S. H. GUILFORD,

J. D. PATTERSON,

T. W. BROPHY,

H. W. MORGAN,

W. C. BARRETT, *Chairman,*

Committee.

208 FRANKLIN STREET, BUFFALO, N. Y., U. S. A.

Copy of letter sent by Dr. Barrett to the President of the Chicago, Northwestern, and Lake Forest Universities after their action upon the matters made public in the Report of the Foreign Relations Committee of The National Association of Dental Faculties at Omaha, August, 1898:

BUFFALO, N. Y., January 10, 1899.

PRESIDENT ——— :

DEAR SIR.—Some time since the Dental Colleges of the United States organized what is known as “The National Association of Dental Faculties,” for the promotion of the best interests of dental education, for raising by combined action the standard of the re-

quirements in preliminary education for matriculation in dental schools, and for the object of securing some uniformity of purpose in the conferring of the distinctively American degree of "Doctor of Dental Surgery."

Two years ago a standing committee was appointed, to be called the "Committee of Foreign Relations," of which I have the honor to be the chairman. Its functions are to take into consideration the interests of the large number of American college graduates practising in Europe, to endeavor to put a stop to the conferring of the American degree upon unqualified foreigners, and to take any practicable steps towards the suppression of the fraudulent colleges which sell dental diplomas for a mere money consideration and without attendance.

It is a fact that the nefarious business of vending dental degrees has been carried on to so great an extent that in nearly or quite all of the European countries enactments have been passed absolutely forbidding the use of the American title of "Doctor of Dental Surgery," and making it a penal offence for any one to attempt dental practice under such qualification. Formerly foreigners flocked to our dental colleges for the purpose of securing training in American dental methods, which were admittedly superior to those of most other countries. This has almost entirely ceased, because the American degree has been made a badge of disrepute in the minds of many foreigners through the infamous vending of diplomas by fraudulent dental colleges in this country.

Through her vicious legislation the State of Illinois has become the seat of this national scandal. I need not recall to your mind what specific law is referred to. Your recent action shows that you know it but too well, and that you are fully aware of the necessity for some action in vindication of the good name of the State.

As a teacher in an Illinois Dental College, I fully appreciate the opprobrium that rests upon the State while such a condition exists, and I write this to say that the Committee of which I am chairman has commenced legal proceedings to bring to justice some of those swindlers. As nearly as we can determine, there are at least a dozen pretended colleges in the city of Chicago which irregularly confer our dental degree. There are as many more charters in existence, conferring upon irresponsible men the power legally to grant degrees of all kinds, and they may begin the vending of diplomas to-morrow. The National Association of Dental Faculties stands ready in any practicable manner to co-operate

with any body of men who will work towards obtaining the repeal of the Illinois laws which legalize this business.

Surely there is no body of men who could wield so powerful an influence in this good work as the presidents of famous Illinois universities and colleges, and there is none which has so vital an interest in maintaining the good name of the educational institutions of the State of Illinois. Will you not, then, as a member of that distinguished body of educators, allow us to proffer any assistance which the dental colleges of America can render. Our dental degree has been more extensively the sufferer from existing conditions than any other, because it is comparatively new, and because the institutions which properly confer it are in many cases independent of university affiliations, and the counterfeiting of their honors may therefore be carried on with a greater degree of impunity.

It seems to us that the first step to be taken should be the obtaining of the repeal of the mischievous Illinois law which permits fraudulent colleges to be chartered, and allows them to attach to their circulars and advertisements, with which foreign countries are flooded, the certificate of the Secretary of State of Illinois that an institution that openly offers for sale degrees in dentistry and other science is legally incorporated, and before the law is the peer and equal of the Chicago, Northwestern, and Lake Forest Universities. In the accomplishment of this good work I can tender to you the best efforts of the National Association of Dental Faculties, and the influence of the whole dental profession of the United States. I hope that it may be possible for us in some manner to be of use, and that the labors of different educational bodies, and of the teachers in all the fields of literature and science may be so concentrated as to insure success.

I am very truly yours, .

W. C. BARRETT,

Chairman Committee National Association of Dental Faculties.

Answer of President Rogers to Dr. Barrett's letter.

NORTHWESTERN UNIVERSITY,
EVANSTON, ILL., January 14, 1899.

W. C. BARRETT, M.D., Buffalo, N. Y. :

DEAR SIR,—I beg to acknowledge the receipt of your very kind letter of the 10th inst. I have read it with a great deal of interest. I beg to assure you that we shall leave no stone un-

turned in this State to secure from the Legislature suitable legislation for the conservation of our educational institutions and the repute of our degrees.

I incorporated into my address at Springfield a portion of the report made by your Committee on Foreign Relations of the National Association of Dental Faculties, and also extracts from your letter. I intend to print the address, and shall take great pleasure in forwarding a copy of it to you. I shall also secure from the most prominent men of the State letters endorsing the movement which we have instituted, and shall print them in pamphlet form and put them into the hands of the Legislature. I shall be very glad to make use of a portion of your last letter to me in that communication.

Again thanking you, I am,

Yours very truly,

HENRY WADE ROGERS.

Answer of President McClure.

LAKE FOREST UNIVERSITY,
LAKE FOREST, ILL., January —, 1899.

DEAN W. C. BARRETT, M.D., Buffalo, N. Y. :

MY DEAR BARRETT,—It is a great pleasure to receive your letter of January 21. Dr. Rogers, of Northwestern, wrote me upon the receipt of my letter, in which I had enclosed your letter to myself, stating that he had already heard from you.

I am very willing to have you use the letter which I write you in any way that you deem wise. I am so heartily interested in all this work that I am eager to do everything within my power to accomplish the ends that we all seek. Allow me to thank you for having written me so fully with reference to your desire to bring about a high standard of preliminary education as a requirement for matriculation and graduation in our dental colleges. I am heartily in sympathy with you in this purpose. Students who have graduated at our Lake Forest College, and then have entered professional schools, always report to me that their preparation for their professional study is so much better than that of those who have not had these earlier privileges that they not only see their own superiority, but they also recognize the fact that their progress is retarded by the presence of those who are insufficiently prepared. Just so soon as we can increase the requirements for entering the dental college, just so soon we shall exalt the no-

bility and value of the dental profession as a profession. It seems to me that education on this subject will, in a brief time, bring about the results that are sought. With great respect and with great appreciation, I am,

Sincerely,

JAMES G. K. McCLURE.

The following has been sent out by the State Board of Health to Medical Societies for their adoption:

January 2, 1899.

THE HONORABLE JOHN R. TANNER, *Governor of Illinois*:

DEAR SIR,—For the sake of the fair name of the State of Illinois, if for no other reason, it is imperative that the Act of 1872, concerning corporations, be amended, so that charters for educational institutions can no longer be issued under the provisions of this Act.

For the past twenty-six years it has been possible for any three or more persons to obtain a charter from the Secretary of State, for a nominal fee, for the organization of any institution for an educational purpose. As a result of this, there are at present in the State over two dozen fraudulent educational institutions, aptly termed "diploma mills," which confer degrees in medicine, pharmacy, law, dentistry, divinity, arts and sciences, etc., upon any applicant in Illinois, in the United States, or anywhere in the inhabitable world, who possesses the necessary fee. This varies from five dollars to one hundred dollars, depending entirely upon the credulity and gullibility of the applicant.

Against this disgraceful and deplorable state of affairs the Illinois State Board of Health has for several years protested in vain. The law gave the Secretary of State no discretion in the issuance of charters, it being obligatory upon him to grant such when an application was properly made and the necessary fee paid. In 1885 the Board adopted a resolution asking that the Act concerning corporations be amended so as to exclude the practice of medicine from among those pursuits or objects for which corporations may be formed. This resolution was forwarded to the Legislature then in session, but without result.

These fraudulent concerns, every one of which is, to the utmost disgrace of the State, a legally chartered institution, have issued many hundred diplomas conferring the degree of Doctor of Medicine, and, as under the laws of many States and Territories of the

Union, graduates of legally chartered medical colleges could practise without restriction, and the holders of these diplomas become at once legally qualified practitioners. As an illustration, I will state that any ignorant or unscrupulous person in the State of Illinois can to-morrow, if he has ten dollars or less, obtain a degree of Doctor of Medicine in Chicago. With this degree he can, the day following, commence the practice of medicine in Detroit, Mich., and be entitled to all the rights and privileges which are accorded to the holder of a degree from any university in the United States or Europe.

As can be expected, this traffic has disgraced the State of Illinois at home and abroad, and has injured the standing of its educational institutions throughout the world.

As an example of the opinion entertained in the United States concerning this matter, let me quote the following:

"The State of Illinois is a glaring example of this kind of vicious legislation, and nearly or quite all the fraudulent colleges are now located in the city of Chicago.

"That city contains some of the best of our professional educational institutions, and at the same time the most villanous impostures conceivable.

"The citizens of other States are powerless, for Illinois is supreme within her own jurisdiction, and she continues to protect her criminals in their villany. The task of securing the repeal of the vicious law is too great for the courage of its reputable men, for ignorance and vice have struck hands in its maintenance." (From Report of the Committee on Foreign Relations of Dental Faculties, Omaha, August, 1898.)

"Illinois has disgraced the United States more than any State in the Union." (Henry Wade Rogers.)

"This . . . should make Illinois hang its head in shame, for so long as the Legislature permits such fraudulent institutions to flourish, the stigma is on the State." (*Chicago Times-Herald*.)

As has been shown in the Reports of this Board, relief can easily be obtained if legislation were enacted placing the issuing of charters of educational institutions with some educational body in the State, which will have the power also to amend or revoke the charters for cause at their discretion. This power to revoke those already issued is absolutely essential, for there are very many charters in existence which can be made available for many years to come.

This Board has suggested that the Board of Trustees of the State University would probably be the most suitable board in existence to carry out the provisions of such legislation. The Illinois Teachers' Association has adopted a resolution asking for the establishment of an Educational Commission, which will be vested with the right to grant and to deprive institutions of the degree-conferring rights.

Trusting that you will lend your influence to abolish this evil,
I am,

Very respectfully,

Extract from report presented to the North Central Association of Colleges and Preparatory Schools, April 1, 1898, by President Henry Wade Rogers, of Northwestern University:

The committee submits the following recommendations:

1. That in each State represented in the Association an effort be made at the earliest opportunity to establish by law a body to be known as "The Educational Commission of ———" (inserting the name of the State).

2. That the Commission be composed of not less than six members, nor more than nine.

3. That the members of the Commission be appointed by the governor and confirmed by the senate. That no person be eligible to appointment on the Commission who is a member of the faculty, or board of trustees, or other governing body, of any educational institution within the State. And that membership in the Commission be forfeited *ipso facto* if at any time subsequent to the appointment aforesaid the person so appointed becomes connected with any educational institution in the manner above mentioned.

4. That the members of the Commission hold office for a period of not less than six years. And that the term of office be so arranged that not more than one-third shall retire in any one year.

5. That institutions hereafter incorporated shall derive the degree-conferring power from the Commission, and not otherwise. That institutions heretofore incorporated, and which now possess the degree-conferring power, may continue to exercise the same unless deprived of the right so to do by the Commission on the ground that the Institution affected falls below the standard which the Commission has established.

6. That the Commission shall not grant the degree-conferring power to any institution incorporated as a business enterprise, or

to any one in which any part of the assets or income can be divided among stockholders, or to any institution having lower requirements for admission or graduation than the minimum standard therefore established by the Commission, or to any institution hereafter established as a college or university, unless its productive endowment shall amount to at least one hundred thousand dollars.

7. The Commission shall not confer the degree-conferring power upon any institution until such institution has applied therefor in writing, and accompanied the application with the sworn statement of the president and treasurer as to the amount of its productive endowment, the provision made for buildings, furniture, apparatus, and the requirements for admission and graduation.

8. The Commission shall have the right, after having given reasonable notice, to withdraw the degree-conferring power from any institution upon which it has conferred it, whenever an institution fails to meet the conditions necessary to justify the granting of the power in the first instance.

9. The Commission may require any institution to which it has granted the degree-conferring power to report under oath to it, at such times as it may designate, upon such matters as it deems necessary, to enable it to exercise intelligently the powers reposed in it. And the failure of an institution to report within a reasonable time and in a satisfactory manner shall justify the Commission in withdrawing from an institution, so offending, its degree-conferring power.

10. Any institution which exercises the degree-conferring power contrary to the provisions hereinbefore set forth shall forfeit its right to exist as an educational institution, and it shall be the duty of the law officers of the State to wind up its affairs. And the members of a board of trustees so offending shall be individually liable to fine, or imprisonment, or both, according to the discretion of the court.

HENRY WADE ROGERS, Northwestern University.

F. H. SNOW, University of Kansas.

R. H. JESSE, University of the State of Missouri.

JOSEPH SWAIN, Indiana University.

GEORGE E. MACLEAN, University of Nebraska.

A. S. DRAPER, University of Illinois.

WILLIAM F. SLOCUM, Colorado College.

GEORGE A. GATES, Iowa College.

Notes and Comments.¹

THE NON-REMOVAL OF SOFTENED DENTINE BEFORE FILLING.—Dr. J. Leon Williams describes his treatment in the *Items of Interest*, about as follows: This is a question that can hardly be answered offhand, or without the use of several ifs and buts. If there has been no inflammation or but slight inflammation of the pulp, I think it is perfectly safe to leave a layer of partially softened dentine over the pulp, *providing the proper treatment of this softened dentine has been carried out*. And this is my idea of the proper treatment in such cases.

Remove the softer portions of dentine and place a pledget of cotton-wool saturated with absolute alcohol in the cavity. Leave this for one minute, then remove, dry the cavity, and flood it with oil of cloves, which also leave for one minute. Any one accustomed to histological work will see the *rationale* of this treatment at a glance. Oil of cloves, which is known to the histologist as one of the most powerful *clearing* agents known,—*i.e.*, it has the property of very rapidly penetrating any tissue, even bone and dentine, that has previously been treated with strong alcohol. It is a sufficiently good germicide for the purpose, and it seems also to have a medicinal effect of value in slight congestion of the pulp. Used as above described, it will penetrate a considerable thickness of dentine and thus search out and destroy or render inert any forms of bacteria that may have penetrated beyond the point where you have cut. Dry out the excess of oil of cloves and varnish the bottom of the cavity with Canada balsam, dissolved in chloroform, to which has been added ten per cent. of the solution of hydronaphthol in chloroform previously spoken of. For this use, the balsam is dissolved in chloroform instead of turpentine, because here we wish it to dry rapidly, while in the treatment of the root-canal we do not wish it to dry rapidly. Partially dry the layer of varnish in the bottom of the cavity with hot air and then apply to the floor of the cavity a piece of thick asbestos paper cut the proper size

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

and shape. The partially dried varnish will hold the asbestos paper firmly in place. Now line the cavity with quick-setting cement and fill with gold or amalgam. Such treatment will leave the tooth reasonably free from sensitiveness to thermal change even when the pulp is nearly exposed.

CLACKING OF FULL DENTURES.—To prevent the annoying clacking or rattling of full dentures, Dr. F. Mackenzie recommends, when constructing them of vulcanite, the removal of the four molar blocks before packing, and packing in their place white vulcanizable rubber, so that there will be four pads of softer material than the teeth, which, when they come into contact, will reduce the rattle.

A. M. Didier, of Paris, about half a century ago, to remedy the same annoyance in dentures of mineral paste (closely resembling continuous gum) made holes or cavities in the crowns of the molar teeth, and filled them with wood or ivory.

ARTIFICIAL NOSE OF CELLULOID.—Herr Walther Bruck, of Breslau, suggests the following procedure for constructing an artificial nose. Upon a model of the remains of the nose and the surrounding parts a suitable nose is carved, and duplicated in zinc or lead. This is first painted with a solution of gum-arabic, and then a layer of damp kid leather is smoothly laid on. A piece of white transparent celluloid, one half millimetre in thickness, is softened in acetone (acetic ether), and carefully pressed into shape on the metallic cast so prepared. When the celluloid has hardened, it is removed, and any slight changes in form corrected by pressing it again upon the slightly warmed metallic cast. When cold, the celluloid is trimmed to shape, its edges smoothed, and the surface gloss removed by rubbing with powdered pumice-stone. Suitable retaining fixtures are attached by means of celluloid dissolved in acetone. It is then painted on the under surface to match the complexion of the face. Herr Bruck claims that the color seen through the celluloid produces a more natural appearance.—*Dental Record*, London, October 1898, p. 463.

USE OF TIN-FOIL IN MODEL AND BITE IMPRESSIONS.—Now and again, when taking impressions for regulating cases, crown- and bridge-work, or for small partial plates, etc., it is more convenient, and greater accuracy is attained, by allowing the patient to bite into the impression so as to secure at the same time and in the same

mass of impression material a mould for the model and for the occluding teeth. Time and effort is saved, and the risk of error in adjusting a separate impression of the occluding teeth to the model is avoided. It has the disadvantage, however, when, as is frequently the case, the upper and lower teeth meet in actual contact, that there may not be enough substance of impression material to hold that which is outside the teeth to that which is within, or, the two impressions may so completely coalesce that it is difficult, and at times impossible after they are filled with plaster to separate the two casts so as to preserve accuracy at these points. This may be effectively overcome by inserting in the impression material before placing it in the mouth, at the point about where the teeth will meet, a sheet of thick tin-foil, or "tea lead," or the thin metal such as is used to cover the face of models used in vulcanite work. This, while quite efficient in separating the impressions of the upper and the lower teeth, is sufficiently thin and pliable not to affect their accuracy. In some cases it may be more convenient to place a mass of impression material upon the upper and lower teeth, lay the tin-foil upon either one, and direct the patient to close the jaws firmly. For crown- and bridge-work, it is convenient to keep on hand blocks of impression material of suitable size, made of two layers separated by a sheet of the foil.

LIQUID GLUE.—Allow the glue to swell in water for ten hours, then melt in a water bath and add one-tenth its weight of salicylate of soda.

Current News.

OREGON STATE DENTAL ASSOCIATION.

THE officers of the Oregon State Dental Association for the ensuing year are as follows:

President, Dr. John Welch; First Vice-President, Dr. R. L. Lincoln; Second Vice-President, Dr. H. M. Hurd; Treasurer, Dr. C. E. Shalk; Secretary, Dr. Arthur W. Chance.

ARTHUR W. CHANCE,
Secretary.

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Original Communications.¹

VOCAL HINDERANCES.²

BY DWIGHT L. HUBBARD, M.D., NEW YORK.

DEMOSTHENES stammered. He attempted to remedy the difficulty by going to the sea-shore to practise oratory aided by pebbles. His indefatigable persistence might well be imitated by those who aspire to the art either of singing or speaking. Much may be accomplished when circumstances are unfavorable. Demosthenes conquered and became great. His individuality, illustrated by untiring zeal and determination, was that which accomplished for him not only the foundation but the superstructure of proper voice-production. I say it accomplished *for him* a proper voice-production. A rule suitable for one may not be a rule suitable for all. Let me say here that I do not believe in particular methods. There is no method for all alike. There is, in a general way, *a* method; but it must in every case be modified by the anatomical and physiological construction of the vocal apparatus of each individual. The basic principles must be followed, but let it be borne in mind that as no two violins are exactly alike, so no two human vocal instruments are of the same volume or timbre. That which will

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read before The New York Institute of Stomatology, January 3, 1899.

follow, therefore, will be subject to the modification stated. The aspiring violinist must learn how to hold the instrument and draw the bow, the rules for which are alike for all learners. But when ease in the mechanic art is accomplished, the individuality and quality of the instrument upon which the learner depends for the interpretation of his own soul must be acquired. Then he will discover that his interpreter has also a soul all its own. In like manner the human voice is subject to the same general laws, applicable to phonetics and acoustics. When interpretation is required, the laws governing its mechanism must of necessity be followed. This accomplished, the mind and soul speak through and by the means of the instrument, with necessary variation from set rules. The child-like wildness of a Calvé was not acquired; it was there in the beginning. The rules were inborn. The plaintive sweetness of a Melba was not an acquirement; it was there long before the voice spoke in the appeal of Marguerite to her God. The long inherited combination which lends the abandon or the self-consciousness, which is sweetness only when ignored, makes the rules and standards for the guidance of imitators. Rules necessitated by mechanics are conventional and for those who lack genius.

But to return. Certainly determination *is* essential. Many there are who *can* sing and will not. Greater is the number who cannot sing, but still they persist in the attempt to reproduce sections of the Wagnerian compositions or to experiment in Demosthenian oratory. The productions of great composers and writers must be interpreted intelligibly by the use of physio-mechanical apparati, and sometimes, if I may use the phrase, dynamic force, but still with the breathings of a whispered confidence. Grand, subtle, and infinitely divine ideas may be conveyed provided the genius is there and, not less important, all the mechanical necessities are fulfilled. The true method, therefore, is that one which combines all these qualities.

As of the greatest importance, I would speak first of the relationship existing between the general health and these organs of special sense. The artificial voice of the educated mute bears testimony to the necessity for good hearing. The blind speak and sing with coldness. Blue people with torpid livers make themselves disagreeable with melancholy strains and words. Those of uric acid diathesis are nervous and spasmodic in their renderings. Splenic people speak with a nonchalant air and vent their spleen

upon the unoffending. Dyspeptics are morose, express even their own ideas incorrectly, and are incapable of speaking for others. People subject to inflammatory conditions of any part of the body, creating a central nervous disturbance, are unfit for society and lose their personal magnetism. Those suffering pain or mental depression communicate the same with all that is said or done. So we might go through the category of general pathology and find that true happiness and the ability to lend ourselves to the highest and noblest in life, especially to those who *truly* live, consists chiefly in health.

Cursorily, we shall consider a few general conditions which influence the vocal mechanism. First in importance is the alimentary tract. Here the glandular system must be taken into consideration. Good sewerage is a necessity to the proper function of all glands. Although this principle applies to such glands as the liver, the spleen, the pancreas, the kidneys, the peptic glands, and others of like character, and also to the whole lymphatic system, we must not forget that the mucous membranes of the body, especially those of the respiratory tract, are abundantly supplied with such structures. The basement and ciliated epithelium of the nasal mucous membrane, the lymphoid tissues standing guard almost completely around the nasopharynx and pharynx, the desquamating scales of the oral cavity, the lubricating mechanism of the laryngopharynx and trachea to its bifurcation, would be perfectly useless in their offices without the monitors which stand guard between them and the peripheral nervous system,—viz., the microscopic glands. Here we reach the secret of the relationship between all general conditions of the body and special functions. Action and reaction explain many of the problems in obscure disease.

Diseases of the teeth alone have no small significance in their relation to general health. The studies of scientific dental men have proceeded so far beyond the mere consideration of the teeth that there is much discussion as to whether it would not be better to change the word "dentistry" to "stomatology," and for those who are prepared by dental college teaching of to-day to change the word "dentist" to "stomatologist."

Oral pathology merits our careful consideration. The sooner we recognize the value of the researches of such men as Black, Williams, Evans, and others of the dental profession, so much the sooner shall we receive light upon a subject left too much in the

dark, but upon which we may well turn the electricity of modern thought and research. Medical men leave much of this to the dentist, and take it for granted that the rhinologist will take care of the parts overlooked. This ought to be, but I am sorry to say that the mouth does not receive the attention it deserves from even the rhinologist, who ought also to be a stomatologist. Dentists up to the present time have been totally unable to appreciate the general relationship of the pathology of the oral cavity to the general system, or the comprehensive application of physiology to the first and most important act of the organs of digestion and the final assimilation of its products. The bridge is being broken down, and the education of the modern dentist is running the medical man a close race in the more minute pathology of oral diseases and the importance of their effects, from the pharyngeal constrictors to the final assimilation of nutriment and the expulsion from the system of useless material. It will be conceded by all that a normal condition of the mouth and of the mechanism of mastication are essential to good digestion.

What are abnormal conditions? They may be cited under the head of diseased states of the upper respiratory tract, improperly, of course, including the mouth; catarrhal conditions of the head cavities, such as the frontal, sphenoidal, and maxillary sinuses and the ethmoidal cells. These are productive of gastric and intestinal disturbances. A catarrhal secretion from these will interfere with the normal preparation of the food by the stomach as surely as water flows down hill. The old-time and homely comparison just used is not used without significance. Catarrhal secretions always *flow down hill*. The nasal plane inclined backward from the anterior nares to the choanæ is the channel for frontal, sphenoidal, and ethmoidal secretions. The nasopharynx receives them and, especially during sleep, carries them on to the constrictors and into the stomach. It is not necessary to dwell upon such semi-purulent and acid secretions as are evidenced by means of the microscope and litmus-paper. Purulent secretions having an acid reaction are not normal. Rebellion is the result. The very initial stage of digestion is interfered with, and the more remote results are manifest. Couple with the catarrhal conditions above described the carious and pathogenic germ-carrying deposits upon the teeth, and we have all the elements which may be productive of malassimilation and malnutrition. As the result not only of carious conditions of the teeth but of disease of the whole

oral cavity, different forms of micro-organisms are ingested. The various forms of yeast fungi, the *leptothrix buccalis*, the *oidium albicans*, and the *spirillum* of Müller are found in this locality. The last is found *particularly* in carious teeth.

According to general rule, the process of cell-formation is a very rapid one. Bacilli, whether rigid or flexible, motile or non-motile, have a very rapid development. According to Cohn, to complete the process of segmentation and for a new cell to attain the size of a parent cell would require only one day to produce sixteen million cocci; at the end of two days, two hundred and eighty-one million would be produced; while at the end of the third day the enormous number of forty-six trillions will have been reached. But such numbers are entirely beyond our comprehension. Suffice it to say that infection is dangerous from whatever locality it may come and from whatever cause it may arise. We have among the micro-organisms found in the buccal cavity the *oidium lactis* (milk mould), the *leptothrix buccalis* and *gigantiæ*, and various forms of organisms found also in other parts of the body. It is not necessary to enumerate them. The effect upon digestion is the thing to be considered. The same acid medium which invited their presence is that which, in the upper alimentary tract, keeps them alive and active. They are not destroyed by the digestive juices, but are nourished by this medium, in which they rapidly multiply and thrive. Stomach and duodenal digestive preparation, thus interfered with, is fruitful in the untoward results evidenced in the important digestive functions below. Assimilation cannot be perfect under these conditions. What are the results? First, rebellion manifested by constipation, with resultant flatulence. This is nearly always traceable to improper preparation of the food by the sentinels of good digestion,—viz., the teeth and buccal secretions. What is the remedy,—intestinal stimulants and antacids? Yes, when correction of primary causes is impossible. But the class of accepted remedies just named is an admission of primary causes. Second, too great an expenditure of vital nerve-force from the aforesaid rebellion results in irritation of the intestinal mucous coats, and diarrhœa is the result. Such, in a general way, is the history of disturbed digestion. It is not a “tempest in a teapot,” but a reasonable relationship between cause and effect. Fundamental principles are the factors which make the modern practice of medicine scientific.

Leaving generalizations, it is proper to consider the oral cavity

and adjacent structures in their relation to the larynx, at the same time exercising that optimism, without which no one can be prepared to practise.

What is voice-production? Garcia cleared up this much-discussed question by his discovery of the laryngoscope. That I may not be too presuming, I quote from Bosworth: "He [Garcia] demonstrated conclusively that the action of the larynx is really that of a reed instrument, and that the column of expired air is thrown into sonorous vibrations by the vocal cords. For the accomplishment of this purpose the cords are brought into apposition in the median line, and, being held firmly in position, are rendered tense by muscular action when the air is forced through by the respiratory muscles of the chest in such a way as to throw their edges into vibration. In this manner the column of air in the upper tract is also thrown into vibration and, as has been stated, converted into articulate language by the movements of the tongue, lips, palate, etc."

I have thus fully quoted from an eminent authority to recall to you the pure mechanics of voice-production and to show that co-ordination between the oral, nasopharyngeal, and nasal structures and the interior of the larynx is an absolute necessity. In any diseased state involving the mouth, throat, nose, or sinuses, co-ordination is interfered with, whether the interference be caused by any of the different forms of stomatitis or by any mechanical or pathological condition of the oropharynx, nasopharynx, nose, etc. A healthy condition of the soft palate is of the greatest importance. The mucous membrane of the larynx follows the rule which governs mucous membranes lining other portions of the air-tract, in that it is covered with columnar epithelium, with the exception of the vocal cords, which are covered with squamous epithelium. Although ciliated epithelium is nature's provision against the attacks of invaders, it becomes powerless when *inflammation* attacks the mucous membrane upon which it is fixed. In the state of fixation thereby produced it furnishes a ready ground for inflammation and the retention of almost any form of micro-organism. In fact, the inspiratory act takes such invaders to their choice lurking-places. Some pathogenic micro-organisms which are common to the mouth are the bacterium lactis, the oidium lactis, and the leptothrix buccalis, all of which have to do directly with caries. The first two named are naturally more frequently found in the mouths of children. Many cases of so-called pseudo-

membranous croup are undoubtedly directly or indirectly caused by the presence of these organisms. We might say that under these circumstances they become really "saprophytic" germs. In what I have just said it is my desire merely to call your attention to the possibility, or even the probability, that such conditions make a favorable soil in the respiratory tract for either direct extension of inflammation, or as indirect causative agents by means of chemical changes.

I wish to say a word about latent germs.

The foes from within are as numerous as the foes from without. That man is his worst enemy is well illustrated in the pathological principle that the acquired and entertained micro-organisms which have found a lodgement within the body lie dormant only so long as a favorable chance does not present itself for their further entertainment, development, and growth. This is the explanation of the following phenomenon, which we often find: Wounds, although externally made perfectly aseptic, develop pus on account of pyogenic germs in circulation. In diseased conditions of the mouth another element of danger thus presents itself.

Why are syphilitic ulcerations of the vocal bands so common? Because this locality is the most exposed, and is the most direct point of attack by the inspired air which passes over existing secondary mucous patches in the oral cavity. Such ulcerations, if they occur at all, generally follow the mucous patches. Laryngeal syphilitic ulceration is the bridge between the secondary and the tertiary stage.

I would not leave the subject without referring to hoarseness and loss of voice through "traumatism." I do not use the word in its ordinary sense, but with a view to the non-pathologic character of many cases. Nasal and nasopharyngeal stenosis cause mouth-breathing, and from lack of *moistened* air produce a traumatic inflammation,—*e.g.*, in atrophic rhinitis. Atrophy of the glands of the mucous membranes of the nasal cavity invariably produces unnatural changes in the voice. Catarrhal secretions from hyperplastic, hypertrophied, or atrophied tissue in the upper respiratory tract cause, from the nature of the principles of mechanics, either a muffled, throaty, hoarse voice, or, through muscular inability from long-continued over-taxation, loss of voice.

In a paper read recently before the Northeastern Dental Association on the subject of "Voice and Artificial Dentures," I tried to show that the voice would be modified by plates, etc. How

much more will abnormal hypertrophies, which cannot receive prosthetic skill, cause trouble in tone, volume, quality, and timbre. The velum palati is, as already mentioned, one of the most important organs of speech. Its free muscular play must not be interfered with either by inflammatory changes, of whatever nature, or by the presence of mechanical obstruction.

To summarize:

As stomatologists, we must not forget the *whole* body, nor confine ourselves in diagnosis or treatment to the oral cavity, forgetting the intimate relationship between it and the respiratory tract proper.

NECROSIS FROM LACTIC ACID INJECTION.

BY DR. J. M. WHITNEY, HONOLULU, H. I.

BEING personally acquainted with Dr. William Younger, of San Francisco, and having witnessed his skilful manipulation in the treatment of pyorrhœa alveolaris, I have in many instances adopted his methods and treatment, and in the large number of cases with marked success; but in the following, was it a coincidence or the action of the remedy used that caused the trouble? My attention was first called to question the wisdom of injecting, by means of the hypodermic syringe, lactic acid between the tooth and process by noting the effect upon Mr. K., a teacher aged about fifty years, large and strong, weighing perhaps two hundred and twenty-five pounds. He had been suffering for some time with pyorrhœa alveolaris. I had treated in the usual manner and had restored all the teeth to apparent soundness except the left superior cuspid. There seemed to be left about this, redness of the gums and a little swelling, though no discharge. As he wished to return to his school upon one of the other islands, I injected with the hypodermic syringe a small quantity of lactic acid pure. It caused him great pain, which lasted, with lessening degree, for several hours. In the morning after there was much swelling of the face. Antiphlogistic treatment was at once commenced, but it was not until after several weeks or months had elapsed, when there came away quite a section of process and superior maxillary bone, that full restoration was accomplished. I could not decide whether or not this was caused by the lactic acid or pre-existing conditions.

My next experience was with a Japanese gentleman, who passed through much the same experience as the case just mentioned, though with less pain, this latter being in the lower left first molar. It was not until a section of necrosed process was removed that comfort was restored.

Of these two mentioned I could not be assured but that previous physical conditions might have had something to do with the necrosis found.

The next two were above all suspicion. Rev. Mr. M. was suffering with pyorrhœa alveolaris. All seemed to yield readily to treatment except the lower left cuspid. Around this, as the previous ones mentioned, I injected a small quantity of pure lactic acid. Pain was at once set up, and comfort did not return until a small portion of necrosed process was removed. The last and most serious case was when I injected a small quantity of lactic acid about the anterior root of the first left molar of Miss H. Pain and swelling of the face, as in the other severe cases, were at once attendant. Antiphlogistic treatment being of no avail, I removed the tooth and cut away with the bur all the necrosed process that could be felt, yet the necrosis extended to the second bicuspid, which had to be removed, and, as in the case of the molar, all the roughened process was burred away. To-day, after two weeks from the last operation, I removed a large section of sequestrum, which I hope will bring comfort to the suffering lady. These four unfortunate experiences have taught me to be afraid of lactic acid injected with any force between a diseased tooth and its surrounding process, though I have no fear of applying it by a thin stick of orange-wood or thin platinum carrier. Applied in this manner, in my hands it has proved a most valuable remedy.

FORMALDEHYDE IN DENTISTRY.¹

BY DR. GEORGE T. BAKER, BOSTON, MASS.

FORMALDEHYDE (CH_2O) is not a new product, but is one whose properties and uses are not at present fully understood. For a number of years it has been known that it was a most powerful germicide, antiseptic, disinfectant, and deodorant, and at the same

¹ Read before the American Academy of Dental Science, December 7, 1898.

time comparatively harmless to the higher forms of life. In addition to these qualities it is a very diffusible gas, and for this reason has been adopted by almost all the large cities for disinfection of dwellings and their contents, after cases of infectious diseases. It is also used in the preservation of foods. One part formaldehyde in thirty-two thousand is said to preserve milk for several days.

Gelatin when mixed with formaldehyde is insoluble in boiling water. This fact is useful in photography.

The fact that water absorbs the gas readily to the extent of a forty-per-cent. solution renders it easy of application as a disinfectant in the fluid form. It is this aqueous solution that is found in the market, and it can be mixed with water to form any degree of strength desired.

The different uses to which it has so far been put and the strength in which it seems best adapted to exert its antiseptic and hardening powers are given in a table by F. J. C. Bird (*Pharmaceutical Journal*). The one part of formaldehyde in this table represents two and one-half parts of the full strength, or forty-per cent. solution of commerce.

A SOLUTION OF FORMALDEHYDE.

- 1: 250,000 kills anthrax bacilli.
- 1: 50,000 prevents the development of typhus bacilli, etc.
- 1: 32,000 preserves milk for several days.
- 1: 25,000 forms a useful injection in leucorrhœa, etc.
- 1: 20,000 preserves wines, weak alcoholic liquids, and beer; also milk for several weeks.
- 1: 4000 recommended for moistening paper used to cover jam, etc.
- 1: 3200 for rinsing dairy vessels, etc.
- 1: 2500 destroys the most resistant micro-organism in one hour.
- 1: 2000 for rinsing casks, and vessels intended for liquids liable to fermentation.
- 1: 500 as a mouth-wash.
- 1: 250 to 200 is a general disinfectant solution for washing hands, instruments, etc., in surgery, spraying in sick-rooms, as a deodorant.
- 1: 160 to 100 hardens microscopic tissues, which should be immersed for a considerable time to give the best results.

1:100 in lupus, psoriasis, and skin-diseases.

1:50 to 25 sterilizes surgical catgut, silk, etc., by steeping.

1:25 for quickly hardening and preserving for microscopical sections; longer immersion in a weaker solution gives better results.

1:10 for hardening very firm tissues in pathological and histological work.

1:5 for hardening firm tissues in such work.

1:2½ for hardening soft tissues for the same purpose.

The fact that formaldehyde is non-poisonous and has no odor of its own but what is easily dissipated makes it useful in many different ways. We have so many products useful in dentistry as germicides, disinfectants, antiseptics, and deodorants, that it may seem unnecessary to add to the list, but formaldehyde seems to possess qualities that in some cases recommend it above all others.

For sterilizing instruments it seems to be of great value. It is efficient, neat, quick, and inexpensive. The instruments may be immersed in a solution of formaldehyde, but a far better way is to expose them to the gas.

Since the warm dry gas does not attack metal or injure in any manner the most delicate material, all sorts of instruments can be easily and quickly sterilized. This includes the hand-piece of the dental engine, rubber-dam holders, napkins, operating-coats, —in fact, everything connected with the office.

Drs. Reik and Watson, whose work is reported in the Johns Hopkins Hospital *Bulletin* (December, 1897), have experimented in this direction, and after giving their work in detail they state "that instruments can be sterilized in a small chamber in from ten to fifteen minutes, using respectively five or three grains of paraform to the cubic foot of space."

Some three months later (March, 1898) Dr. Reik made a supplementary report, in which he repeated his former statements and said, "My conclusions are, then, that we have in this method a rapid, cheap, easy, and sure method of sterilizing instruments without in any way injuring them."

To corroborate the above, we have the report of Elmer G. Horton, B.S., from the laboratory of Hygiene, University of Pennsylvania. (*Dental Cosmos*, July, 1898.) Mr. Horton took chisels, excavators, and burs, proved them sterile, infected them from cases in the operative clinic of the department of dentistry, placed them in a sterile tube, and dried them in an incubator for three hours.

Those infected instruments were then exposed to the fumes of formaldehyde for from ten to fifteen minutes.

After explaining the results in detail, Mr. Horton says, "We conclude that infected dental instruments can be disinfected without injury in a closed space of less than one cubic foot, by an exposure of fifteen minutes to the formaldehyde gas generated from a pastil containing five grains of paraform by heating the pastil over a proper alcohol lamp."

These and other experiments of men of authority all point to the fact that in formaldehyde we have a very desirable product and one that for many purposes in dentistry is bound to replace other inferior and objectionable disinfectants.

Abstracts and Translations.

THE NEW TREATMENT OF HEMORRHAGE.

THERE are certain hemorrhages which, even though they are profuse, can be readily controlled because they occur in places where mechanical means can be employed for their arrest; but there are other hemorrhages which spring from vessels so deeply situated that compression and ligature do not suffice to control them, and in their presence the physician only too frequently finds himself unable to do much for his patient. In this connection the papers which have been recently published in French literature concerning the value of gelatin and calcium chloride or gelatin and sodium chloride for the purpose of causing coagulation of the blood are of interest, and some of them have been accorded space in our Progress columns. One of the most recent of these papers dealing with the indications and contraindications to hæmostasis caused by the action of gelatin is that of Paul Carnot in *La Presse Médicale* of November 16, 1898. After calling attention to the fact that he made his first communication concerning this subject in 1896, he goes on to mention the hypodermic injection of sterilized gelatin solutions for the purpose of increasing coagulability of the blood in general. He then points out that the local use of these solutions is exceedingly valuable in controlling capillary or oozing hemor-

rhage where compresses fail to produce the results desired, and that this substance often suffices when preparations of the iron and the acids fail. It is, of course, absolutely essential that the solution when it is injected shall be absolutely aseptic. Very commonly the gelatin has been dissolved in ordinary sea-water which has been filtered and sterilized. In other instances it is, as we have already indicated, dissolved in ordinary water to which calcium chloride has been added, calcium chloride having great power, as first pointed out by Wright, of Netley, England, in increasing the coagulability of the blood. The solution that Carnot has employed among others is one composed of gelatin, 12 drachms; chloride of calcium, $2\frac{1}{2}$ drachms; and water 1 quart. Queyat has modified this to the extent of adding a small quantity of glycerin to the solution. Any advantages this glycerin may have as a solvent are, we think, more than counterbalanced by its physiological action, which ought really to contraindicate its introduction into a mixture designed for subcutaneous injection.

As the solubility of the gelatin is a good deal increased by the application of heat, and as heat also aids in making it fluid, it is well to sterilize it immediately before it is to be used, and then to employ it before it becomes thickened by cooling, care being taken, of course, that it is not used so warm as to cause damage. It is claimed that when from one to two ounces of this solution is given under the skin into the loose subcutaneous tissues of the back or thighs it acts very speedily in causing coagulation at the bleeding point. When gelatin solutions are applied to exposed bleeding surfaces, care should be taken to protect these areas lest putrefactive changes take place in the gelatin after it is applied, and if the gelatin solutions are used in the nasal cavities to stop hemorrhage, such precautions must be carried out. Carnot then goes on to point out that there is some danger of producing hypercoagulability of the blood if the gelatin solutions are used too freely, and this possibility is to be considered as an argument against its too free employment. Indeed, Carnot believes that the free injection of both the gelatin and calcium chloride in the presence of pressing hemorrhage may, though it controls the hemorrhage, ultimately exert a deleterious influence upon the blood in general. In his opinion, therefore, the subcutaneous use of this mixture has certain disadvantages, and ought not to be commonly resorted to. He thinks that the gelatin solutions are of the greatest benefit when applied locally, and that when it is necessary to give a hæmostatic hypodermically calcium

chloride itself should be employed, as under these circumstances it is effective in aiding in the coagulation of the blood, but is not capable of causing hypercoagulability, since, as is well known, calcium chloride, when given beyond a certain point, ceases to increase the coagulability of the blood and rather tends to exercise an opposite influence.

In this connection Deguy tells us, in the *Journal des Practiciens* of November 12, 1898, that the subcutaneous injection of gelatin solutions is capable of producing the following disagreeable symptoms: A condition of fever may develop, ranging from two to three degrees above normal, and this may last for a day or two. It is apt to be present in the evening and not in the morning, and sometimes is accompanied by chills and insomnia. The local accidents which follow its injection may be divided into three parts,—pain, due to the injection, of a burning character which is increased by pressure; second, a diffuse redness of the skin or pseudo-inflammatory process, violaceous in appearance, which disappears for a moment on pressure and then immediately returns; third, a diffuse induration of the tissues, having very much the same sensation as the induration due to anthrax. Usually this lasts a number of days. From what has been said for and against this method of using gelatin it is evident that it may prove to be not so valuable a haemostatic as we were led to believe when its usefulness was first suggested; or rather, to express it otherwise, the untoward effects of this treatment may more than counterbalance the good which it is capable of doing.—*The Therapeutic Gazette*.

Reports of Society Meetings.

AMERICAN ACADEMY OF DENTAL SCIENCE.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Wednesday evening, December 7, 1898, at six o'clock.

A paper was read by Dr. George T. Baker, of Boston, entitled "Formaldehyde in Dentistry."

(For Dr. Baker's paper, see page 221.)

Dr. G. T. Baker.—Thinking that the subject of formaldehyde

might be a profitable one for discussion, I have prepared just a few words to read concerning it. Before reading, I will take this pastil, which is the gas in solid form, and by putting it in this cup, and then placing the cup over the lamp, and the lamp in the oven, the gas will be generated before I am through reading. One of these pastils contains five grains, which is sufficient to destroy any bacteria or disease germ in a cubic foot of space in ten minutes. This oven contains just one cubic foot.

This other apparatus is a formaldehyde generator. It generates the gas from wood alcohol. This lamp is filled with the alcohol, then inside this tube are two disks, and below are holes to allow the admission of air. When it is lighted, these disks become very hot, and the fumes of the wood alcohol, mixed with air passing up through the tube and over the incandescent disks, become converted into formaldehyde gas. Mr. Chase, of Melvin & Badger, tells me that this is probably the way in which all formaldehyde is manufactured in Germany and France, only on a very large scale, of course, but the operation is the same as that lamp.

In regard to this oven. I have for experiment put the lamp in there with no pastil in it, and have found that the supply of oxygen is just enough to keep the lamp burning for from six to fourteen minutes, depending on the height of the flame, and it is just about the same when the lamp contains a pastil and the gas is being generated.

DISCUSSION.

President Cooke.—We are all surely interested in this method of sterilization. The subject is now open for discussion. I would like to ask Dr. Baker to inform us what he uses the large lamp for?

Dr. G. T. Baker.—The large lamp is not used at all. I simply brought it for the purpose of showing how the gas is manufactured. Most, if not all, of the formaldehyde used in this country is manufactured in Germany and France, and this is the way it is done, —the fumes of the wood alcohol, mixed with air, pass over these heated disks and the result is formaldehyde gas.

President Cooke.—Could it be used for the fumigation of a room after a person had been sick in it?

Dr. G. T. Baker.—That is what it was designed for. There are a great many formaldehyde lamps on the market, but the lamp that uses the pastil is the best. The pastil, which is called paraform, is the gas in solid form, and by putting it in the lamp the heat sets free the gas and you get pure formaldehyde.

President Cooke.—What is the cost of an outfit like that?

Dr. G. T. Baker.—I think about \$6.50. They have them at Metcalf's, Codman & Shurtleff's, and other dealers. I bought my oven and lamp at Bassett's, and it seems to work very nicely, and I put all sorts of instruments in the oven overnight,—clean them first and then sterilize them. Of course instruments to be sterilized must first be cleaned. They may be thoroughly cleaned by the use of soap and water, and still not be sterile. It is a deodorizer as well as a sterilizer, and the deodorizing property to me is fully as useful as anything else. Sometimes we want to get rid of odors; for instance, in the course of our work we are brought into close proximity with our patients, and supposing one person used a certain perfume very disagreeable to another, this can be readily overcome by deodorizing your office coat.

Dr. Williams.—It will clear a room of the odor of tobacco, and it seems to me an excellent thing for sterilizing the hand-piece of an engine. I do not know of any other way that it could be sterilized unless taken apart.

Dr. Stevens.—I was asking a man the other day, who was in my office explaining the merits of thyealol, why they did not use formalin for the antiseptic. He said it was no use putting it in, because it would evaporate, and would not remain in the solution. I wondered whether that was true. We have some solutions that claim to have formaldehyde in them, but whether it evaporates and leaves the residue I would like to know.

Dr. Fillebrown.—It will dissipate in a very short time. I use it a good deal in my case of instruments, saturating absorbent cotton with it, and it will fill that case with formalin gas, but it will not be very long before the cotton will be dry.

Dr. Stevens.—I should expect this result; but suppose it was in a solution, and kept corked as solutions usually are, will the formaldehyde evaporate?

Dr. G. T. Baker.—It will stay in a solution if proper care is taken. If put on cotton or instruments, I should not be surprised if it did evaporate very quickly, as it is very diffusible, but I know that it will keep its strength in a solution in a bottle for a long time.

Dr. Marfield.—How can you test whether it has lost its strength or not?

Dr. G. T. Baker.—You can test its strength by the taste or smell. It makes a valuable thing to use as the antiseptic element

of a mouth-wash. As a guide in making up solutions, I would say that ten drops of the forty-per-cent. solution to an ounce of water makes about a one-half-per-cent. solution formaldehyde, and this is strong enough ordinarily for the mouth, while for a gargle for the throat a much weaker solution should be used.

For sterilizing instruments the gas is to be preferred to the solutions.

Dr. Taft.—Do I understand that you use that after every operation?

Dr. G. T. Baker.—Every time you want to be sure that you have a sterile instrument. I make a practice of putting my instruments and office coat in the oven and leaving them overnight.

Dr. Taft.—What do you do about your hands?

Dr. G. T. Baker.—It is a splendid deodorizer. For instance, if you have been treating a pulp-canal, a one-per-cent. solution will deodorize your fingers perfectly; it practically has no odor of its own.

Dr. Taft.—Is it not just as important that you sterilize your hands after each operation as well as your instruments?

Dr. G. T. Baker.—You can do that, if you wish.

Dr. Taft.—Do you do that after each operation?

Dr. G. T. Baker.—No; I do not, as a rule. I simply wash my hands thoroughly in soap and water, occasionally using formaldehyde for deodorizing.

Dr. Taft.—I do not see why soap and water will not do for the instruments just as well.

Dr. G. T. Baker.—Hot water will, if you leave them there long enough.

Dr. Werner.—I would like to ask Dr. Baker,—for I think this is a very practical and nice thing for us to know, and it is a subject which we should not attempt to ridicule,—I would like to know what the disks in the funnel of the large apparatus are made of?

Dr. G. T. Baker.—They are made of copper.

Dr. Werner.—This matter was incidentally referred to before in our Academy during the discussion of another subject, and, if I remember correctly, the gas was generated with a funnel, or chimney, in which the disks were platinized asbestos. Is this an improvement over that method?

Dr. G. T. Baker.—I cannot say. I am only familiar with the method that generates the gas by heating the pastils over an al-

cohol lamp. Drs. Reik and Watson, and Mr. Morton, of the bacteriological department of the University, who have studied and written upon this subject,—all three of those gentlemen say that this is the most perfect method yet devised for generating pure formaldehyde gas.

Dr. Eames.—I am in hearty sympathy with what has been said this evening in regard to this sterilizer, but there are some things to be said regarding it, as a new thing, not entirely settled. Are we not carrying organisms into the mouth quite as well by means of bibulous paper or cotton, as by instruments or hands? Certainly, to be truly surgical, the hands, the absorbent cotton, the bibulous paper, or anything that is put in the mouth, should be thoroughly aseptic. It is a question whether boiling is not the surest sterilizer for those instruments or those materials which can be boiled. With the mouth-mirror and the right angle of the engine, there is a question whether it is not best to immerse them in a solution rather than to subject them to the formaldehyde gas. A recent German paper makes the statement, and no doubt it has been verified by others in this country, that if there is a layer of moisture on the instruments when they are put in a sterilizer of this kind, it fails to do the work. Last evening I was present at a meeting of the Metropolitan Society, and Dr. Lamkin, of Lynn, presented a sterilizer which he had modified from an ordinary tin cake-chest. This, with the lamp at one dollar and a half, makes a sterilizer which costs only one-third the price of the one shown this evening. This modification, if successful, will be of interest to dentists generally.

Dr. Belyea.—I have tried the cake-box with the formaldehyde gas for sterilizing. The only trouble I had with it was the rusting of some of my instruments. Possibly that was caused by a leakage of air, the cake-box, of course, not being thoroughly air-tight.

Dr. Potter.—I am very glad to see this question of sterilization brought out. It is one in which I have for a long time taken a great deal of interest. Personally, I prefer to boil my instruments in order to sterilize them. Still, I recognize the fact that there may be other ways of accomplishing the same result. For the benefit of those who boil their instruments, I wish to mention a boiler which I found this summer and which I have used with a good deal of satisfaction. It is an enamelled steel asparagus dish fitted with a perforated tray. Instruments can be placed on the tray and then immersed in the boiling solution. These dishes can

be bought at F. A. Walker & Co.'s, 85 Cornhill, Boston. With regard to formaldehyde, I have been watching the literature for some time. You know very well the extravagant claims that were made for it when it first came out. It was said that formaldehyde gas would search out bacteria, even when wrapped in blankets and hidden away in mattresses. Late experiments show that formaldehyde gas will not reach bacteria so placed except in a vacuum chamber. It has also been very clearly shown that formaldehyde gas does not penetrate moist substances. There are, therefore, limitations in the use of formaldehyde gas which cause one to hesitate before adopting it as a sterilizing agent. And yet it may prove to be the most desirable means which we have of sterilizing instruments. I am looking forward to it with a great deal of expectation, knowing that there are undesirable things connected with heat sterilization which I would be glad to get rid of by the adoption of some other method if I could feel certain that the new method would accomplish the desired result.

I would like to refer the Academy to an excellent paper by Dr. Charles Harrington, of the Harvard Medical School, entitled "Possibilities and Limitations of Formaldehyde as a Disinfectant," published in the *American Journal of the Medical Sciences*, January, 1898.

Dr. Werner.—Will the essayist please tell us the solution of formalin he uses on his hands that he thinks is strong enough as a sterilizer and deodorizer and yet would not be injurious to the skin?

Dr. G. T. Baker.—I think it is a question as to the exact strength that is required. The different authorities give a slight difference as to what strength should be used. Mr. Bird says 1:250 formaldehyde for general disinfectant solution for washing hands, sterilizing instruments, etc. That would be equivalent to a 1:100 of the forty-per-cent. solution, or one per cent. I do not think it makes any great difference. In my use of it I put about one teaspoonful of the forty-per-cent. solution into the bowl, containing about one pint of water, which makes about one-half per cent. formaldehyde solution, stronger, perhaps, than need be, but it does not affect the hands, though it does deodorize them, and according to the authorities it does sterilize them.

Dr. Werner.—I think that is practical information. My difficulty is in deodorizing my hands after cases of pyorrhœa alveolaris and putrescent pulps. They are the most disagreeable odors to get rid of. You cannot do it by merely washing your hands in

soap and water, unless by the addition of something else to disguise it, which may be equally as disagreeable to the patient.

Dr. Fillebrown.—I wish to say a few words to commend formalin to the attention of those who have not used it in connection with the care of their instruments. I was fortunate in obtaining a package from the first importation that was made from Germany. Dr. Jack spoke to me about it, and I have used it constantly ever since. The directions for its use are essentially the same as they were at that time,—that is, that one-half of one per cent. was sufficient for all ordinary cleansing purposes. It takes the place of bichloride, 1:1000, and of course of anything weaker. It is unnecessary, I think, in an ordinary dental practice to sterilize the instruments more than once in twenty-four hours, and if you have a solution 1:100 of formalin that your instruments are washed in after using them, you will have them thoroughly aseptic during the day. Formalin does not rust the instruments and keeps them perfectly clean. I have one of the sterilizers, and I find it an excellent thing to put in many of my instruments, napkins, sponges, and leave them there overnight, and they are all ready for the day's work. It does them no harm to leave them there. I have allowed instruments to remain two days in the sterilizer and when I took them out they were in perfect condition.

Professor Ernst thinks that if instruments having no grooves are washed clean in a 1:100 solution and put in a case in which I keep a piece of cotton saturated with the formalin, it is abundantly sufficient to destroy all the germs on them. It being so easily used, I think it is a very valuable thing.

Speaking of the strength which could be used in washing of hands without injury, I had the temerity when it first came out to wash my hands in the full strength,—that is, forty per cent. formaldehyde. There was no great harm done, although it was a little rough on the cuticle; but weaken this with four or five times its quantity of water, and you can use it with perfect impunity on the skin.

Dr. Maxfield.—There is one other point I would like to see brought out to get the experience of the gentlemen present. You will remember that when formalin was first introduced as a disinfectant Dr. Howe experimented with it in the treatment of pulpless teeth, and he reported to the Odontological Society of New York several cases where he had been unable to close the canal when using other antiseptics, but by using formalin in the canal

he was able to close it with no trouble; that is to say, in those cases an irritation had been set up within ten hours after closing the cavity where some well-known antiseptic had been used, but after using the formalin no further trouble occurred. Now, my experience in that way has not been very encouraging, for it has seemed to me in my use of it in pulp-canals that it has acted more or less as an irritant; the gas seemed to penetrate through to the end of the root and cause considerable pain, and pain that was not easily controlled. If the members would state what their experience has been in such cases, I would be very glad to hear it.

Dr. Allen.—I can add to Dr. Maxfield's testimony on that line. I have reason to believe that formalin caused very severe pericementitis where I applied it a few weeks ago, and it was not easily controlled. I used it as a disinfectant in a cavity before filling.

Dr. Williams.—Mr. President, I have had several instances of that sort, and on the general principle that formalin is an irritant, we should be very conservative in its use. With that knowledge, I avoid putting it into the ends of roots that are open. If there has been some previous disinfection and the end of the root is stopped, then of course you can sterilize the rest, if you please, with formalin. But, although readily effective, I have also found that it is not a durable disinfectant. It is rapidly dissipated, and unless there was some sort of reservoir to hold the supply, I should not want to depend upon it for permanent disinfection. It seems to me that a more permanent effect could be obtained by the use of some of the phenols, but if a person should wish to use formalin, I would emphasize the importance of avoiding making applications where it may get access to the vital tissues.

Dr. Maxfield.—I would say that I used a two-per-cent. solution in the canals in the same manner as described by Dr. Howe.

Dr. Williams.—To carry out a little analogy of the thing: You know of course the essential principle of this is formic acid, which is the same as the bee puts an atom of into the honey to preserve it. If the honey is taken out of the comb, the formic acid evaporates and the honey changes in appearance, and we know how the sting of the bee evaporates; so this is practically the same principle,—we are simply using the poison of the sting of the bee in a dilute form.

Dr. Brackett.—My experience with formaldehyde has been, I might say, superficial, from the fact that I have made no special study of the subject, and yet it seems not to have been in accord

with those of the gentlemen who have just been speaking. It was first brought specially to my attention by Professor Wolcott Gibbs. A few years ago he brought to my office a one-half of one-per-cent. solution. That solution was the strongest that I had as a starting-point, and diluting that somewhat, so as not to be at all unpleasant to the taste, I used it in washing out alveolar abscesses and for various cleansing and sterilizing purposes without ever noticing any such results as the speakers have just mentioned. The dilution was made without accuracy, but probably the solutions used in my syringing out of alveolar abscesses and for similar cleansing purposes were not stronger than from one-twentieth of one per cent. to one-tenth of one per cent. I have also used these weak solutions for dipping the cotton which I have used as dressings in pulp-canals, and also as an antiseptic in cases of pyorrhœa alveolaris. I have no memory of any serious after-pain resulting; a little transitory smarting is the most serious that I remember. In my use of it, it did impress me as a valuable agent for all the objects that I have mentioned, but the dilution was quite considerable.

Dr. Williams.—You will notice that Dr. Brackett says that even with these very weak solutions there were some cases of transitory irritation.

Dr. Brackett.—It could hardly be called an irritation,—just a brief smarting, such as might come from the application of alcohol. I do not remember any intractable pain or anything that persisted for more than a very short time.

Dr. G. T. Baker.—One point has not been spoken of to-night, —that is, the use of formaldehyde in teeth with live pulps. It is a great irritant, and should be used in very weak solutions, and in teeth with live pulps I do not think that it should be used at all. I have never had any experience in using it that way, but I have heard that it will destroy the pulp just as arsenic will, but in pulpless teeth I think that it makes an excellent disinfectant if used in sufficiently weak solutions. I know the first time I used it for the disinfecting of a pulpless tooth, I used about a one-per-cent. solution, and the patient came back, complaining that the tooth was aching, so after that I used weaker solutions, and have never had any trouble since. The solutions of formaldehyde are not recommended for the sterilizing of instruments, as it has been found that the gas itself can be used more conveniently and will sterilize them perfectly, according to the testimony of eminent

bacteriologists, and they all agree that it is one of the most powerful germicides known. Dr. Peck, of Chicago, lately made some experiments to determine the comparative strength of solutions of formaldehyde and bichloride of mercury, and he found that one in one thousand solution of bichloride of mercury was three to four times as powerful as a one in one thousand solution of formaldehyde. He also showed that the concentrated solutions of formaldehyde were very irritating and should be handled with due care.

HARRY E. CUTTER, D.D.S.,
Editor American Academy of Dental Science.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A MEETING of the Institute was held on the evening of Tuesday, January 3, 1899, at the residence of Dr. S. E. Davenport, No. 51 West Forty-seventh Street, the President, Dr. E. A. Bogue, in the chair.

The minutes of the previous meeting were read and approved.

COMMUNICATIONS ON THEORY AND PRACTICE.

Dr. E. T. Payne.—When I received an invitation from your secretary, it occurred to me that a case of facial neuralgia which I had not long ago might be of interest to the Institute. The pain had been coming on for two years, and the case had been given over as hopeless by the local physicians. When it came under my treatment I found the cause and effected a cure, which seemed such a revelation that I was invited to lay the case before the medical society in Western Connecticut somewhat in detail.

I found that the medical gentlemen were quite in the dark concerning the cases of facial neuralgia which result from a secondary growth in the pulp-cavities of teeth.

The subject of neuralgia is so wide that a paper would be insufficient to do it justice. I shall, therefore, not undertake to refer to the disease in general, but only as applied to one form of facial neuralgia, and to indicate what is sometimes the cause. To you gentlemen who are so familiar with the malady I need go into very few details. I will simply say that the abnormal growth known as pulp-stone occasionally obtains in the pulp-cavities of the teeth and causes great suffering. It is difficult for one who

has not had considerable experience to locate the particular tooth and give relief. The case was that of a lady of thirty-five. One of the superior molars was somewhat troublesome about one year ago, and she wished me particularly to examine that. I did so and found it apparently in perfect condition. At that time she said nothing about neuralgic pains. About two months ago she called and said she was suffering intensely, and wanted another examination of her teeth; that her doctor was unable to do anything to relieve her. The most severe pain seemed to centre under the orbit, but the darting, throbbing pains were diffused over the entire right side of the face.

My mind reverted to the previous visit, and I concluded to apply the usual tests for pulp-stone. I located the trouble in a molar, opened to the pulp, and applied the usual preparation to destroy it. After thirty-six hours I removed the medicament and cleansed the cavity. After four days I opened into the pulp-cavity and found the specimen which I bring for your inspection.

I removed the pulp from the roots and filled them just as I would when an exposed pulp had been devitalized. Complete relief resulted.

To diagnose pulp-stone is not very difficult:

1. Such exertion as will increase the action of the heart will aggravate the trouble.
2. Sounding the tooth with a steel instrument will give the same result as incipient periostitis.
3. Sudden closing of the teeth indicates periostitis.
4. Closing the teeth gently and biting ever so hard is not painful, and proves that periostitis is absent.
5. Lateral pressure does not give pain, as would be the case with periostitis.

You will note three positive tests and two which may be called negative.

Dentists will do well to call the attention of their medical friends to this matter. More cases of neuralgia result from trouble with the teeth than many suppose.

The President.—I suppose Dr. Payne considers that when the pulp-stone has been in existence as long as this one, that there is a certain amount of inflammatory action in the pulp.

Dr. Payne.—Of course, the disturbance resulting from the pressure of the foreign substance caused at least momentary pulpitis, but acute pulpitis did not obtain, I am quite sure, or else

strangulation would have resulted during the weeks and months the patient had been suffering.

Dr. S. H. McNaughton.—I had a somewhat similar case about three years ago. The patient, a man of fifty-five years of age, was brought to me for consultation by his dentist. He had suffered much from neuralgia of the left side of the face and head, and had been treated by his dentist, by a consulting oral surgeon, and by his physician for a month or more. There had been an unusually severe attack the previous day. Examination showed that all the upper teeth had long since been removed, and that all the teeth in the lower jaw, with the exception of the second molar, were devitalized. The roots of the incisors, left cuspid, and I think those of the left bicuspids had been amputated. The wound, although not healed, had a healthy appearance.

My first thought was that such pain, if caused by a tooth, was due to one with an irritated pulp, and the second molar was the only tooth on the left side of the lower jaw which contained a live pulp. Rubber dam was applied and a stream of hot water was played on the tooth for two or three minutes without any sensation. Shortly after removing the dam the patient said that I had started the pain.

Cold water for a minute or two gave relief. In reply to questions the patient said that the pain often began during a meal, after exertion, and in the evening. The tooth was drilled to the pulp-chamber and arsenous acid applied. His dentist resumed the treatment, and I was informed that there had been no return of the pain after the application of arsenic, and that the pulp and several pulp-stones had been removed.

The point which I wish to make is, that the application of heat should be made for two or three minutes or more instead of but for an instant. I have had several similar cases where the application of heat for a few minutes has been a great aid in establishing a diagnosis.

Dr. J. F. P. Hodson.—In response to your invitation, Mr. President, I have to say that it so happens that I am in deep tribulation in this direction at the present time. Some months ago a young Scotchwoman, visiting this country, suddenly became practically blind in one eye, and both her physician and her oculist, having surely defined the normality of her system, and come, by the process of exclusion, to define the teeth as the cause, turned to me for dental assistance.

I have thus far been wholly unable to render any, although I am confident that I shall eventually find the cause in the teeth, as they are enormously filled, whole crowns and many of the teeth being built up with amalgam. I suspect pulp-stones, but she has not had the slightest pain in any of the teeth, and I can get no response whatever to any of the usual or unusual tests which I am making.

There are nine or ten teeth, any one or more of which might be the culprit, but I have never in all my experience met with any case where some slight leading could not be had, either by there being but one or two suspicious ones, or by some slight response somewhere to the array of tests to differentiate the many.

Dr. S. C. G. Watkins.—Dr. William P. Cooke, of Boston, read a valuable paper on this subject before the Academy of Dental Science, in Boston, May 7, 1890, the title of which was "Formations in the Pulp-Cavity." It was published in the *INTERNATIONAL DENTAL JOURNAL* of December, 1890. He gave stereopticon views to illustrate his paper, showing how many cases there were of pulp-stones, calcified tissue in the pulp, and calcified tissue connected to the side of the pulp-cavities and chambers. I think that, of five thousand teeth which he examined, a great proportion of them had calcified tissue in some form or other, either in the form of pulp-stone or spicula. He projected a great number of pictures on canvas at that time, showing conclusively his results and his beautiful work along that line. I think it would be well for the members to look that paper over again; it would be most interesting to all of us, for certainly a great many of those cases are overlooked. We find some, but I think there are many which we do not find and perhaps do not suspect, yet they cause a great deal of trouble. I am very glad to hear the remarks by Dr. Payne on this subject; they are exceedingly interesting, and I feel that I have learned something.

Dr. C. O. Kimball.—I wish to speak for a few moments of a very simple appliance which I have used many years for the purpose of holding back the gum from cervical cavities. As the time is limited, I will go directly to the explanation without any preamble, except this, that we all feel the difficulty in those cases in which the cavity runs around the neck of the tooth close to the gum, and especially where, by the receding of the gum, the sulcus between the roots of molars is partly exposed.

For all these cases I use hickory sticks shaped to fit the tooth

and cavity, and held in position with the left hand, so that the rubber dam is held back with it.

I have tried various kinds of wood but have come to this for these reasons: Hickory has a certain toughness of fibre that hardly any other wood possesses; it can be moulded exactly to the tooth and to the cavity as well, even in some cases bent to a curve, and yet it is stiff, so that it does not give, and has a fine fibre, so that it can be made thin without splitting. I should have hesitated in calling attention to so simple a device as this, but happening to speak of it to one or two members who have had a very large experience, I was surprised to find the idea rather novel to them. Hence it seemed to me wise to bring it forward. I have here some of the sticks that I use right along in practice, and the shapes that they naturally take can be seen. I gouge out the upper surface of the stick until it fits the margin or follows the line of the cavity. I then cut the end of the stick so that it fits the neck of the tooth, shaving the back of it down to a thin knife edge; in this way the stick is adapted to each individual case, which is the one great advantage of the stick over a steel instrument. For instance, on a lower molar, where the gums have receded and the cavity has a double-U curve or line at the margin of the gum, running down on each root and up towards the middle, one of these sticks can be exactly adapted to each case, even having a point which juts into the space between the roots, not only holding the dam in place, but covering and compressing the gum between the roots where the dam cannot go. Another advantage of using the stick is, that we can hold down the gum and dam firmly, without pressing with undue force on any one part, but restraining it all with equal pressure. As one gets in the habit of doing this the sticks can be fitted very quickly and readily.

Dr. Hodson.—When Dr. Kimball did me the honor to ask me to speak on this subject, and to exhibit some of my own appliances, I assured him that what I could have to say would amount to very little, but perhaps I cannot do better than tell you of my own experience in the premises. First, in respect to the hickory stick, I should feel that they would lack in positiveness, in that unyielding exactness of thin edge characteristic only of metal. It would seem to me, also, far more bulky than the delicate metal edge which takes up no appreciable room, and so would cover and hide the very under-the-gum cervical edge which I had probably been at much pains to uncover. I should presume, moreover, that the

stick would present a little rope-like or turned-over edge that would destroy the delicacy of my marginal exposure. Worse than all, it would absorb and conduct to the gold the moisture which all my endeavors had been directed to exclude. In a word, if I needed to hold the gum back when the cavity ran underneath it, it would require an *absolute* holding. If, on the other hand, there remained an isthmus of material between the cavity margin and the gum line sufficient to accommodate anything so bulky as the wood, I would not need anything. Thirty years ago—in 1870, I think—I wrote a paper on the rubber dam, and directions for its application, and among the instruments, appliances, and clamps, which I then suggested, was this type of small thin chisels, with the edge concave to fit the rotundity of the neck of the tooth. They are of various shapes,—straight, hatchet-shaped, etc.,—to accord with the different positions in which they would be held for different teeth. They are sharp and thin, and are intended to be placed by gently carrying the edge of the rubber (I use the thinnest dam for all purposes) above the cervical margin with a small flat burnisher, and while so holding it place the appropriate instrument in position, holding it firmly and positively against the tooth (*not* against the gum) throughout the operation. These I show might be handsomer,—they would even be the better for wooden handles, for instance,—but they have seen much service, as, though changed in shape or in angle very often for individual cases, they are the identical ones I have used daily for all these years.

I am accustomed always to get as full an exposure of the cervical margins as possible before operating, by packing a bit of gutta-percha—with its surface moistened, after warming, with oil of cajuput to make it stick—into the cavity and against the gum for a day or two. The gutta-percha may be made to stay in place, if other methods are inadequate, by tying thin floss silk around the tooth and over the filling. It is sometimes expedient, in case of any considerable extension of the cavity *around* the tooth, to fill it in two sections, by placing hard gutta-percha, or oxyphosphate, in half the cavity to prevent leakage, filling the empty portion complete; then shifting the holder to the portion filled with gutta-percha and filling that.

Two of these little instruments are right and left, and hold down the dam upon the posterior surface of partially developed back teeth, as, this posterior edge being held, the retention of the dam in *such* cases is sure. Tipped-forward teeth, with their totally

different presentation, would require totally different treatment. These instruments seem to me far better and more gentle in such cases than clamps, and, indeed, it is a curious circumstance that, although I had the pleasure, in the article in 1890 previously referred to, of introducing the idea and system of clamps, which has now grown to such beautiful applications, I have never found occasion or necessity for their employment since that time.

I am very thankful to Dr. Kimball for his suggestion in respect to the wood. I have used it somewhat during the two or three weeks since he mentioned it to me, and think that for certain cases, as I get accustomed to it, I shall like it better.

Dr. J. B. Hawes.—I do not know that I can add anything to what has already been said. I always rely upon the rubber dam in filling such cavities, which can be easily kept in place by an instrument holding up a fine silken ligature, not tied so tight as to prevent it from adapting itself to the gum line, and with the knot always on the side of the tooth opposite to the cavity.

Dr. F. Milton Smith.—The subject has narrowed down, as I understand it, to the keeping of cervical cavities dry. I did not so understand the announcement, and had other thoughts in mind. The suggestions that have been made have been helpful to me, for I have been interested in this class of cavities for many years. About ten years ago there was advertised by the S. S. White Company what was known as the Howe cervical clamp, with which all are probably familiar. At that time it was the best clamp for the purpose that I could find in any of the dental depots. I purchased it, and was greatly disappointed to find that it did not do the work I desired, and it seemed to me that something adjustable was needed for the purpose. One night when I could not sleep the idea occurred to me, Why not make such a clamp and make it adjustable? I got up the next morning and made this clamp, which, so far as I know, is the first adjustable cervical clamp ever given to the public; but I found after making and using it and offering it to a certain company to manufacture for the profession that already the same clamp had been patented and stowed away until after the market had been supplied with the one first referred to. That clamp which was patented is the Howe adjustable clamp, and was the first adjustable clamp patented. I am glad that I found out what is done with useful patents after they are taken out.

My usual plan for keeping cervical cavities dry is to tie a silk

ligature around the neck of the tooth. Where it is much higher on the labial side, I hold the ligature above the cavity with a hooked instrument held in the left hand. In many cases I dispense with the ligature, depending upon steel instruments to hold the dam above the cavity.

Dr. L. C. Leroy.—Dr. Smith's description of the silk ligature calls to mind the steel wire, that can be conveyed about all teeth and be held nicely in place without the application of any other instrument. I have found it of excellent service, and it is so useful that it should not be lost sight of in a discussion of this kind. It is not a clamp, but a piece of soft "binding" wire simply twisted about the tooth in the way that we twist any wire, and it will remain in the position in which it is wound.

Dr. Hawes.—In the preparation of the cavity, I take great pains to make it of such shape that after it is one-third filled, the gold will hold itself in position and the overhanging gold will hold the rubber dam.

Dr. Dwight L. Hubbard presented a paper on "Vocal Hinderances."

(For Dr. Hubbard's paper, see page 213.)

DISCUSSION.

The President.—You have heard this very interesting paper, and I hope it will not be allowed to pass without proper discussion. Dr. Hubbard did not go into all the points, but he has done enough to serve as a starting-point.

Dr. R. H. M. Dawbarn.—There are some points which come to mind under the head of vocal hinderances which were not mentioned by Dr. Hubbard,—lymphoid growths in the pharyngeal vault, with their associated phenomena; certain irregularities of the teeth which render the proper enunciation of the labio-dentals (*f* and *v*) impossible.

Concerning the lymphatic supply of the nasopharynx, it would not be amiss to speak of Waldeyer's tonsillar ring, comprising which from above downward are Luschka's tonsil, the two tubal tonsils, two faucial tonsils, and the glossic tonsil.

Dr. Hubbard.—My attempt in writing this paper was to generalize and submit matters of general interest suggestively. Of course, it would be impossible to exhaust such a broad field, for a whole library would be the result of such an attempt. I am obliged to Dr. Dawbarn for referring to lymphoid growths in the

pharyngeal vault. I fully recognize their importance. I have, upon former occasions, said so much upon this subject that I thought it well not to bear upon it now.

Dr. John I. Hart.—I am very glad to have listened to Dr. Hubbard's excellent paper, and I think that it has a practical character which is of interest to us all. A proper consideration of the paper would necessitate its division into two headings, one academic and the other practical. I am glad that Dr. Hubbard endorses those of us who have recognized the necessity for proper hygiene of the mouth; and it will lead those who have not given the subject much thought to the necessity of taking or causing their patients to take greater care of the mouth from a hygienic stand-point.

The President.—It would have been a source of pleasure, I think, as does Dr. Dawbarn, if the essayist had led us a little farther in the consideration of the question of phonation and all that is concerned in it.

This would, I am aware, have brought in cleft palate, the saddle-shaped jaw, irregularities of the dental arches, adenoid or lymphoid growths, and a consideration of the question whether irregularities of the teeth do not frequently produce these bodies in the posterior nares. On the other hand, whether the presence of adenoid growths does not conduce to such irregularities of the upper jaws as lead to irregularities in the positions of the teeth and to such changes in the vault of the palate that accurate normal phonation is impossible.

I am sure we all feel that the essayist has but opened the question this evening.

Dr. J. Morgan Howe.—I move that a vote of thanks be extended to Dr. Hubbard for his very interesting and able paper.

Carried.

Adjourned.

F. L. BOGUE, M.D., D.D.S.,
Editor The New York Institute of Stomatology.

ACADEMY OF STOMATOLOGY.

A REGULAR meeting of the Academy of Stomatology was held on Tuesday evening, December 27, 1898, at the rooms of the Academy, 1731 Chestnut Street, with the President, Dr. M. H. Cryer, in the chair.

A paper entitled "Clinical Studies of some Suppurative Diseases of the Maxilla" was read by Professor H. C. Boenning.

(For Professor Boenning's paper, see page 146.)

DISCUSSION.

Dr. M. H. Cryer.—I was asked by the Academy to open the discussion upon this paper of Dr. Boenning's, and before doing so I wish to congratulate the Academy on having had such a paper read before it. As I understand it, the main point, not only in alveolar abscess, but in all abscesses, is to reach the part affected, and open it sufficiently. We can scarcely make the opening too large, and are thus able to remove not only the contents of the cavity, but its surroundings. In all abscesses, whether they be in the soft tissue or bone, it is not only the pus-cavity that is involved, but also the surrounding membrane, which used to be called the pyogenic membrane. In the soft parts we have this membrane; really, the line of demarcation between the healthy and the diseased tissue, or nature's attempt to expel the latter. It is well to go beyond this,—go down to healthy tissue. As Dr. Boenning has said, it is impossible to evacuate large pus-cavities through the apical foramina of teeth. Here is a skull showing a central incisor surrounded by a large opening in the anterior wall of the process extending through to and involving the hard palate. To evacuate this pus-cavity simply through the tooth is impossible, although we have dentists by the hundreds who are constantly endeavoring to do this. I believe, as Dr. Boenning has said, it is better to raise a flap and take away the necrosed bone, both labially and lingually. Dr. Truman will recall a case that I showed him a few weeks ago, of a large palatal abscess which extended entirely through the alveolar process, so-called, and could be felt buccally. I say "so-called," because we have no true line of demarcation between the true maxilla and the process, and in this case the abscess extended up into the bone proper. In the treatment of the case I raised a flap and with a large-sized bur drilled out the diseased tissue from the palatal surface. I packed the parts with the ordinary sterilized gauze incorporated with sub-nitrate of bismuth. In some cases this is not as irritating as iodoform gauze.

The doctor has spoken of disease of the antrum arising from a tooth, or from an abscess forming independently of a tooth, and passing up into the antrum. He speaks of opening into the an-

trum well and freely. I endorse this, but I have seen the anterior wall of the antrum cut away, the alveolar process thoroughly curetted, and the patient dismissed, but in a few months return with a discharge into the mouth. Therefore, we must look for more obscure causes than diseased teeth, or disease directly within the antrum. By clinical observations, and by dissection, I have traced abscesses within the antrum to the frontal sinus, and have shown on the screen photographs of specimens at the University which demonstrate, I believe, that infectious matter has passed into the antrum from abscessed teeth and out through the opening into the hiatus semilunaris, and from that through the infundibulum into the frontal sinus, and thence been communicated to the brain. I have seen cases of meningitis produced by diseased teeth. Then, again, I have specimens showing where the opening on one side of the frontal sinus has been closed, the bone becoming perforated, the infected matter has passed into the antrum, and teeth have been lost through disease originating in the frontal sinus and especially in the anterior ethmoidal cells. We should have to pass farther up and cut away the septum between the antrum and the nasal chamber. If the rhinologists of to-day find a suppurative condition in the nasal chamber and antrum, they advocate making an opening from the antrum into the mouth, and, instead of directing this infected matter through the nasal chamber into the pharynx, they drain it into the mouth, making it, if you will allow me to use the vulgar term, a "sewer." This is bad surgery. I think even rhinologists should be able to treat the nasal cavity, the ethmoidal cells, and the frontal sinus, and treat them in such a way that they will not be compelled to turn this effete matter into the mouth. If the rhinologist will not do it, the oral surgeon must do it; we must not have this infection in the mouth.

I hoped that Dr. Boenning would speak of another class of chronic abscess as generally found to be difficult to treat. I refer to external abscesses of the lower jaw. In a case of an abscess opening upon the body of the jaw at the facial notch, concerning which all the attendants at the clinic of Professor Garretson disagreed as to a diagnosis of tuberculosis, abscess from the submaxillary gland, or necrosed bone, the patient was brought here before the Academy. Dr. Jack examined the patient, and asked if a certain tooth was vital. I told him it responded to heat and cold, and I thought it was, but because of his question I drilled into the tooth and found the anterior pulp filaments vital, while

the posterior one was putrescent. After placing the rubber dam over the tooth, carbolic acid was pumped into the canal, and after working this for some time I found that the carbolic acid had gone down through the tissue. Cotton saturated with carbolic acid was packed tightly into the canal, sealed in with gutta-percha, and the patient dismissed. The carbolic acid oozed out of the opening near the facial notch, and did not cease oozing until the next morning. The patient recovered, and the trouble has not returned. I have two patients now under my care who for some time have had abscesses in this region near the facial notch. Each is caused by a devitalized tooth. In many of these cases, after the tooth is extracted and the parts within the mouth become cured, we still have a constant discharge externally. Dr. Boenning has given us the best way of treating, and that is, to make a free incision and find out what is the cause. If there is dead bone, remove it; if there is infection of any kind, remove it. I believe that is the radical and proper method.

Another case is that of a colored person who came to the University of Pennsylvania Hospital with a large abscess. She had been sent there by a surgeon to have a tooth extracted, or to have the teeth examined. The surgeon had operated externally by making a large incision, cutting down to and scraping the bone. He had treated the case for months without any cure. She could scarcely open her jaws. By digital examination I found that there was an impacted lower third molar, and that the upper third molar was occluding upon the overlying gum tissue. By using a curved probe I found that there was a cavity in the lower third molar leading to a putrescent pulp. This, then, was the origin of the abscess and the cause of the trouble. The mouth could not be opened sufficiently to extract the third lower molar, but there was room enough to get a small universal root-forceps over the upper molar. It was removed, which, of course, relieved the gum tissue from occlusal irritation. In two weeks' time the jaw was opened sufficiently to pass a No. 3 elevator between the second and third molars, and by giving it a turn the latter tooth was removed. The socket immediately filled with pus, and by forcing peroxide of hydrogen into it disinfection was secured. I hope that by keeping this part clean the patient will get well without further operation.

Dr. Truman.—Notwithstanding that my good friend Dr. Cryer asserts that many dentists treat alveolar abscess through the canal, I believe that no intelligent dentist, unless wishing to give tem-

porary relief, would now think of treating alveolar abscesses universally in that way. Now, the idea that alveolar abscess can be relieved or cured, not be recurrent, by any such treatment is, to my mind, almost an absurdity. What is an alveolar abscess? What are the symptoms? What are the phenomena following it? It stands exactly in the same relation to tissue as necrosed bone does to the maxilla. It is simply necrosed tissue. You cannot remove the pericementum from the tooth any more than you can the periosteum from the bone, and have remaining live tissue. Consequently, in all alveolar abscesses there is necrotic tissue always present as an irritant, and, therefore, there must be a constant source of recurrent trouble. As Dr. Boenning has said, the only real remedy for alveolar abscess is to cut off the necrosed root. It is a great mistake to go on treating a tooth by pumping carbolic acid or other agents into the canal, under the supposition that that will cure the diseased condition. I hold that it is never done, and do not see how it is possible. One might as well inject carbolic acid into a necrosed jaw and expect to have a return to health as to attempt to cure alveolar abscess by that kind of treatment. You must get at the sequestrum of the necrosed jaw, and you must remove the sequestrum of an abscessed tooth.

As to the antrum, Dr. Boenning unquestionably is right when he says it is better to make an opening as large as possible, if necessary, the better to wash out the antrum; but he takes it for granted, apparently, that the teeth have nothing to do with it. In my experience I have found that in almost every case the teeth have had something to do with it. The direction in which an alveolo-dental abscess will discharge will depend entirely upon whether or not the tooth-root has very nearly perforated the antrum, and we all know that very many of the roots do. Now, pus always follows the direction of least resistance, and if that is towards the antral cavity it will pass into it. Unless that tooth be removed, there will be a constant discharge into the antrum. Either wash it out or curette it, you still have the original cause, and I hold that in the treatment of all inflammations the cause must be found and removed; any other treatment is almost malpractice. There may be other causes of antral empyema, such as tumors and cysts, but if the cause is a dental one, and that is easily determined, the first essential is the removal of the tooth.

The President.—As Dr. Boenning is anxious to leave early, perhaps he would like to answer Dr. Truman.

Dr. Boenning.—I desire to call attention to a paragraph or two which seem to have been overlooked by the gentlemen in speaking of treatment. I said, following the thought laid down in the discussion of treatment of alveolar dental abscess, that "it occurred to me several years ago that if we desire to cure antral abscess, so called, we must establish an opening sufficiently large to thoroughly evacuate the antral cavity, clear out the purulent material, curette the carious walls of the antrum, and to completely remove all pathological masses or substances." If there is a diseased root in the floor of the antrum, what is that but a pathological condition? Therefore, instead of discussing at random the theme of the subject here, it is plain that a pathological condition is any diseased condition, whether it affects a tooth, a bone, or a soft structure, and if that presents in the floor of the antrum, then it is amenable to the same line of treatment as the removal of a necrotic root in the case of alveolo-dental abscess. I do not desire any one to imagine for one moment that in the treatment of cases of antral abscess I would have you open up the antrum, discharge its contents, remove the pus, and allow a necrotic root or roots, as the case may be, to remain. The speakers have merely misinterpreted the paper, which distinctly advocates the removal of the cause.

Dr. Truman.—I understood Dr. Boenning to say that he thought it was almost malpractice to remove a firm tooth.

Dr. Boenning.—A firm tooth, yes; by which I desire it to be understood a tooth which shall be to all intents and purposes a normally healthy tooth, free from pathological conditions. I will leave it to the discussion of the society as to whether a necrotic root is ordinarily firm or not.

Dr. Cryer.—I would like to show a specimen from a white subject, with the roots, both buccal and lingual, of a molar almost penetrating the antrum. This, I believe, is the case in nearly all of the white race, but not in the negro or the Japanese, as far as I have been able to ascertain. We find the roots of the teeth in this negro skull are far from the antrum. I believe that in the colored race we will seldom have the antrum affected by abscessed teeth, while in the white race we are much more liable to have it.

(Replying to question of Dr. Hickman.) I have not only seen the second, but first bicuspid root enter the antrum, and have seen a cuspid root in a position where, if an abscess were to occur, the

infected matter could enter the antrum. A specimen at the University of Pennsylvania presents a condition where the apices of the roots of the teeth from the central and to the second molar, inclusive, are in the nasal chamber; in other words, the antrum does not come down into relation with the teeth, but is cut off above them, while the external wall of the nasal chamber passes over to the buccal side of the maxillary bone.

Dr. Jack.—Mr. President, in my treatment of primary alveolar abscess, I must say that it has always been conducted through the canals, and in a large majority of instances the treatment of such has been successful after the complete disinfection of the canals and thorough flushing of the roots, where this was possible.

With chronic abscesses my success has not been so pronounced, though in some instances, where I could get the passage of disinfectants through the canal and fistula, the treatment has been successful, unless there has been infection of a necrosed root. In one case, of a lower molar, there was an abscess continually discharging from the anterior root, though the canal had been correctly filled. The tooth at length became so extremely mobile that I felt convinced that the patient would lose the tooth, and so announced it to her. She replied, "I will not have the tooth removed, and you must cure it." I administered ether, and amputated the end of the root which was necrosed. In a few weeks the part became entirely healed, and there has been no recurrence.

In my experience of forty years I have had but two or three actual cases of antral empyema,—one about two years ago, and the other within a few weeks. The one two years ago occurred in the mouth of the wife of a physician. I had made application to destroy the pulp of a tooth, and had partially devitalized it, when the patient, on account of some physical condition, was sent by her husband to the sea-shore. While there the tooth became more seriously involved, the tissues became inflamed, and when she returned, very shortly afterwards, there was evidence of empyema of the antrum. The tooth was extracted immediately. Her husband, being a surgeon, took charge of the case. He opened the antrum immediately posterior to the canine fossa, and after treatment of some weeks he entirely cured the case.

Another case occurred in a lady patient about four years ago. A consultation was asked for by the husband, also a physician. After careful examination of the teeth by the thermal test, I found them all to contain vital pulps, and I gave it as my opinion that

the teeth had to be excluded as the cause of the disturbance. The case then passed into the hands of the rhinologist, who took charge of the case, as an extension of a purulent nasal condition. The patient recovered. In that case there was a large amount of discharge and very great fœtor, but there was complete recovery.

Dr. Jeffries.—I was a long time ascertaining the origin of the worst antral abscess I have had to treat. There was in the mouth a devitalized molar; on the same side one of the bicuspsids was loosened, and the other was devitalized. After drilling into the molar, which I supposed naturally was the cause, and getting an opening through the lingual root into the antrum, I treated through it for some time. Afterwards I opened through the antral wall, and, though the condition was ameliorated, it did not result in a cure. I opened the bicuspid and found that was not the cause, and, as a last resort, I took out an old filling, which had been for twenty years or more in the canine tooth, and found that it was responsible for the abscess; yet there was not a particle of external evidence that that tooth was involved. There was no soreness manifested; but after that was treated, together with the opening in the frontal aspect of the antrum, a cure was quickly effected. In another case an abscess over the roots of the central and lateral incisors reached back to the centre of the hard palate, where fluctuation could be distinguished. The treatment consisted of burring the necrosed bone and the apices of two teeth. The cavity, after several months of continuous treatment, filled up with granulations completely. The origin of the disturbance was in the central incisor, it having been devitalized and filled for probably twenty-five years. The treatment was tedious and recovery slow, on account of the physical condition of the patient, who was in poor health, but there has been no recurrence after cure was considered perfect.

Dr. Hickman.—I went with a physician to see an antral case concerning which he wished to consult me. I asked him if he had extracted any of the teeth, and he said, "Yes, all the front row." I asked him why he did not begin with the other end. He said, "Those teeth have no connection with the antrum whatever. I would not extract those teeth for anything in the world." The patient had three upper molars on each side. I gave my opinion, which was not acceptable, and some time later I heard of the patient's death.

Dr. Darby.—I think any one would infer from the paper this

evening that all cases of chronic alveolar abscess required perforation of the alveolar plate. If that impression has obtained, I am certainly not one to endorse it. I know that a great many chronic alveolar abscesses are cured without perforation of the alveolar plate, and should be sorry to think that dentists were in the habit of performing the operation to cure ordinary chronic alveolar abscesses. Perhaps in many instances we might cure them as promptly, or more so, by cutting away the opening and evacuating what might be in the abscess cavity, but the ordinary cases we meet with, unless there may be necrosis, are amenable to escharotic and disinfecting medicaments. I saw, only a few years ago, a lateral incisor that had been suppurating for twenty years. The man said that every morning he pressed pus from a little sac on the mucous surface, and that was the end of it for that day. I opened the tooth and pumped wood creosote through the fistula. A cure was effected in twenty-four hours. I have seen the gentleman once a year since, and there has been no return, in spite of his sixty years and the fact that it was a chronic abscess of twenty years' standing. In the lower jaw we frequently meet with cases more difficult because the roots are more tortuous or more constricted. If we could pump medicaments through inferior molars, we should have less difficulty in curing. There are cases where I think we would do well to run a bur right through the alveolar plate and curette the diseased area, but in many cases there is no occasion for it. By filling these canals as thoroughly as I can, carrying a seton of iodoform gauze to the bottom of the fistula and letting it stay until it works out, I get healthy granulation from the bottom. Where there has been necrosis of the root apex, the only thing indicated is amputation. I endorse the free opening of the antrum when opening is indicated.

Dr. James Truman.—I think we ought to define our words somewhat. Dr. Darby uses the word "cure." I do not quite understand how he can use that word in connection with alveolar abscess. I recognize the fact that by pumping in creosote or carbolic acid, or any of the escharotics used, we can produce a toleration with a necrosed portion, but I cannot comprehend how we can have alveolar abscess in any tooth and the pericementum retain vitality and continue to perform its function. The very fact that we have pus in a given cavity necessitates a separation of the pericementum and periosteum of the bone, and we have what is ordinarily called a sac. Does that periosteum or pericementum re-

unite with the tooth at that portion? Not if I understand the philosophy of repair in teeth, or anywhere else in the organism. It remains always as a foreign body.

Dr. Darby.—If it lasts twenty years and gives no more trouble, it is then practically cured?

Dr. James Truman.—I cannot call that cured, but the tooth is simply placed in a state of tolerance.

Dr. Register.—I had a case of external abscess at the facial notch which was as large as a hen's egg. The patient had been treated for some time by a surgeon, who had failed to establish a dental origin. I found a devitalized molar, cleansed its canals, and pumped thirty per cent. of sulphuric acid through them into the abscess tract. I treated externally with dilute iodine and chloroform. It was healing rapidly, when the patient called upon and convinced his physician that the trouble was due to a tooth. His physician acknowledged his error, and told him to have the tooth out, which advice was acted upon without first consulting me. As I had given the patient his choice of treatment or extraction in the first instance, my annoyance at the professional discourtesy was very great. I prefer the dilute sulphuric acid in these cases, because of its great solvent power over necrosed bone. One day, while performing an implantation of a cuspid tooth, to my surprise I entered the antrum. I merely changed the direction of my bur, implanted the tooth, and all went well. I have operated upon a cat for extensive maxillary necrosis, packing the wound with iodoform gauze, stitching the cheek, and paying no further attention. It recovered.

Dr. McCullough.—I was asked several years ago by a veterinary surgeon to assist him in an operation on a dog. There was a fistulous opening on the line of the lower jaw. As he was doubtful as to the cause of the disease, I, with a probe, followed the canal in the direction of the first molar tooth. I was not satisfied that there was a perceptible discoloration of the tooth, but, such a cause not being uncommon in our practice, I recommended the extraction of the lower first molar, which resulted in a permanent cure.

Another case was that of a man, thirty-two years of age, who, when a boy of fifteen years, had the edge of an upper lateral incisor broken by the sudden letting go of a brake on a horse-car. Several years later he began suffering from neuralgic pains throughout the side of the face and head. He was treated continually internally by physicians, and was sent to me by his last adviser

when he was about thirty-two. I found the lateral incisor very much discolored, a swelling of the gum in front of the apex of the root, and a pulsating sac of considerable size on the same side of the palate. I opened the tooth to prove my diagnosis, and, as the sac in the roof of the mouth was below the level of the apex of the root, I believed it impossible to force the contents of this sac up to and through the root by the apex. I therefore made an incision of about an inch over the swelling in the palate, when my lancet sunk in an opening of one-eighth of an inch in the palate bone. I then, with the syringe, forced different germicidal fluids through the root and out through the opening in the palate, and the reverse. I cleaned the tooth thoroughly and filled the root immediately with gutta-percha. I left a drain in the opening in the palate for several days. There is every evidence of an absolute cure. Two years have elapsed since the operation with no change.

OTTO E. INGLIS,

Editor Academy of Stomatology.

NORTHEASTERN DENTAL ASSOCIATION.

(Continued from page 126.)

CAVITY PREPARATION.

BY SIDNEY S. STOWELL, D.D.S., PITTSFIELD, MASS.

MR. PRESIDENT AND GENTLEMEN,—The subject which I have chosen for this occasion is of more vital importance to the regular practitioner in dentistry, and has more to do with his success or failure, than any other subject in the whole realm of dentistry.

It is my opinion that the man who will so apply himself as to acquire the ability to properly prepare a cavity in a tooth for filling will, as sure as night follows the day, fill that cavity successfully.

I have for eighteen years made this important subject my study. I have availed myself of every possible resource of knowledge. I have exhausted all available literature. I have witnessed the demonstrations of many of the most renowned operators of the world, and have arrived at one grand conclusion, summed up in two short sentences, the truth of which I challenge any one to gainsay: The

right way to prepare a cavity is *all right!* The wrong way is *all wrong!*

I suppose, gentlemen, that each one of you knows how to prepare a cavity in a tooth for filling as well as I do, and I suppose I know how as well as you, and yet I venture that no two of us would prepare the same cavity exactly the same; therefore some of us must be wrong. I will state the three most vital principles in cavity preparation which may be accepted as *all right*.

First, free cutting of all frail margins remote as well as on the front.

Second, self-cleansing margins.

Third, avoid trespassing upon the domain of that sensitive member the pulp, numbers 1 and 2, round burs being large enough to make all grooves and anchorages.

(Specimens of cavity preparations were passed around.)

Dr. C. Frank Bliven, of Worcester, Mass., followed with a short article entitled "A Guess."

A GUESS.

BY C. FRANK BLIVEN, D.D.S., WORCESTER, MASS.

Good guessing is said to be one of the accomplishments of a thoroughbred Yankee. Having been born in Connecticut, I should by birthright be an accurate guesser.

I am going to make a guess! Some day dental colleges will discover that dentists, like poets, are born, not made; that neither the possession of a good intellect nor the possession of degrees will make a dentist. Perception, concentration, courage, patience, endurance, gentleness, firmness, these the dentist must have, and, besides these, tendencies scientific and artistic, with a natural aptitude for his work. When colleges can create these qualities, they can build a dentist out of any man; until then there will be few dentists even among those who write D.D.S. after their names.

Two things are necessary as the basis of success in life,—first, the choice of a profession for which the individual is by taste and tendency adapted; second, such education as will develop his special gift. Who can estimate the tremendous amount of energy wasted daily by those following uncongenial employments? What needless friction would be avoided if men could do the work they liked to do! Not only would all the world's necessary work be done,

but it would be done in less time, leaving the worker's leisure hours each day for recreation and higher culture.

Colleges are serving a purpose: they aid the intellectual development of their students and add to their information. Colleges, however, have not yet struck the principle which, when discovered and applied, will insure the success of every earnest student; they do not develop character.

This day of diploma-bearing dentists is also the day of the "dental parlor." Twenty-five years ago there were no "dental parlors." The dentist was a dignified, professional gentleman. Laws have been passed with intent to "elevate the profession." That end cannot be accomplished by the enactment of laws. So long as men who take a given course of studies and pass given examinations are graduated by colleges without reference to special fitness for the chosen profession nor to their moral standing, so long will charlatans be protected in their competition with honest men.

There is one difference between an ignorant man and an educated one,—the latter can do more mischief. An uneducated thief will steal your overcoat or umbrella; an educated thief will steal your house or your business. An uneducated thief is subject to law as it stands; an educated thief will use his power to *make* laws which protect him and his kind.

Colleges will become unqualified powers for good when they not only seek to develop a man's abilities, but seek to develop them for the highest end,—service to his fellow-men. Let dental colleges graduate no men but those especially adapted by nature to the profession and those whose conduct has shown a consciousness of responsibility for the welfare of others. There will then be no further talk of "elevating the profession." The profession will be elevated and the public protected. If not, I shall have to guess again.

Thursday Morning, 9.25.

Dr. E. B. Dickinson, of Amherst, Mass., read a paper on "Ethyl Bromide as an Anæsthetic."

(For Dr. Dickinson's paper, see page 91.)

DISCUSSION.

Dr. G. A. Maxfield (Holyoke, Mass.).—It seems to me that we should be very conservative in accepting new anæsthetics. We all

know that in every anæsthetic there is danger. When under the influence of an anæsthetic, a person is as dead as can be possible in life. Ethyl bromide has not yet been accepted by the medical profession. We should wait until the profession has tested it and pronounced it safe. I really think the use of ethyl bromide will pass out of use. We realize the great trouble and danger in giving these drugs. I have not used one for four or five years, and I always advise patients to employ a physician at their own homes. It relieves me of a great responsibility. In the present condition of affairs the public do place more confidence in these things than physicians. This ethyl bromide was used eighteen or twenty years ago and dropped out of use, and to-day it is revived. But it seems to me that we should wait for the medical profession to adopt it.

Dr. Stockwell expressed agreement with Dr. Maxfield.

Dr. James McManus.—I think the paper well presented. But this constant finding fault with the colleges is what I object to. It is a great many years since I attended college, but materia medica was taught then. The students were required to study it. If a student cannot pass his examination, lay the blame on the student, and not on the college. When a student is given a list of the works on materia medica, and does not take advantage of his opportunities and fails in examination, it is the fault of the student. I protest against the constant finding fault with the colleges.

Dr. Flanagan asked if there were not records of cases where ethyl bromide had an evil effect?

Dr. Dickinson.—There was one case where ethyl bromide was used by the continuous method, but that is not a common way to use it; forty drachms of the anæsthetic were given; and in the other case—I think I have the case in mind which the gentleman refers to—the patient's mouth was covered with sores. I know of those two cases, but they are no detriment to ethyl bromide.

Dr. Flanagan.—I want to thank Dr. Dickinson for giving us the paper, for it is out of the ordinary; but, as Dr. Maxfield said, suppose we have a death, we have the authority of America against us, and would have to stand trial.

Dr. G. A. Mills (New York).—I have an admiration for men who will emphasize what they mean. I am willing to take this man's word. I am willing that he should use ethyl bromide if he wants to. I am not an expert, but I use cocaine as readily as paregoric, and have absolute success with it. Take two gentlemen whose testimonies absolutely disagree, what are you going to do?

Simply let them go on. Opinion is divided over the world in regard to chloroform, but perhaps the majority are against it. But in Scotland they have the lowest death-rate of any country in the world, and they use chloroform. In Baltimore, Shaker uses it. You know yourself what to do. It is in the man. If a man has that within him which gives him confidence to do these things, that confidence will take care of him. One cannot rush into these things. If you do not agree with a man, do not get out of temper. It does not do to call a man a fool in these days. Let the man demonstrate his ability.

Dr. Maxfield.—From the questions that are asked the graduates, you will see that the stress is not laid upon materia medica that is laid upon other studies. It is a branch upon which more stress will have to be laid, because scientific advocates will demand it. I believe in bringing the colleges up to just as high a standard as possible. I am working for this one thing. In regard to the paper of Dr. Dickinson, it has the effect of impressing upon our minds that there is such an anæsthetic coming along, and we will be on the lookout for it. As to criticising the old preparation, I do not care to go into that. The criticism of this is of no account if the new preparation is good. If this drug is what it is claimed to be, it gives relief from pain before consciousness is lost. I am not willing to give up cocaine. I wish I were a young man, that I might study. I have an ambition for the dental profession to be something and have its right place.

Dr. G. Lennox Curtis (New York).—I listened to the paper with great interest. The tone of the papers here has been of a much higher grade than is generally heard at such a meeting. My attention was attracted to ethyl bromide in Baltimore, in 1880, by a paper from Dr. Chapin on eye-disease. He spoke there of the importance of the drug and of the danger in using it. I procured some of it and began experimenting, first upon myself. While under its influence, a man is in possession of all his faculties, but pain is gone. Dr. H. C. Wood told me that he believed ethyl bromide to be more dangerous than ether and less so than chloroform. For minor operations I like it very much. Of late I have not been using it, because cocaine has taken its place. The rapidity with which you can operate with ethyl bromide is of great advantage. I remember giving a clinic at one time at which were several who had used ethyl bromide. Some of them, being friends, when I began to operate, said, "Good-by, we will not be present at the

death, as we do not want to appear in court." Several left the room. The operation occupied one minute. The patient suffered no pain, but was conscious of having work done. I have had no trouble in the use of ethyl bromide. I have had patients do very funny things. Sometimes they imagine themselves on a trapeze.

I have no right to work with an agent with which I am not familiar. I cannot get familiar with anything except by experimenting. Dr. Dickinson is an expert. Those who have occasion to use such a short-acting anæsthetic should employ some one familiar with it. I do not know that there is a patient here for me. I expected to demonstrate in a work the use of cocaine and the value of the antidote. If there is not a patient here for me, I will give you a talk on surgery.

The report of the Committee on Dental Law was called for, and the following was adopted by a unanimous vote:

It having been brought to the attention of the Northeastern Dental Association that a committee has been appointed by the National Association of Dental Examiners to bring about a uniformity of dental laws throughout the United States, and to arrange for the recognition of the certificate of one State, having a standard examination, by other States, this Association, aware of the importance of the subject, expresses its approval, and trusts the committee will do all in its power to accomplish this object at as early a day as is practicable.

Resolved, That the secretary forward this resolution to the chairman of the committee, Dr. William Donnelly, of Washington, D. C., and also to the president of the Northeastern Association of Dental Examiners.

Resolved, That the president appoint a committee of one from each State represented in this Association, to give this matter their earnest attention.

Dr. W. H. Ryder (Danbury, Conn.).—I do not think that we should pass the paper of Dr. Smith as we did yesterday, with no remarks. I cannot agree with Dr. Smith myself, and I do not think that paper should be accepted without a protest on our part, showing that the society practically accepts his theory of stimulating the teeth by cleansing them. If he will try this pumice-stone on some other part of the body, he may get the required stimulation, but I know from practical experience that it is bad practice to use it on the teeth. It is impossible to get pumice-stone so fine that it will polish enamel on the human teeth. And teeth apparently so polished, even under an ordinary glass, will give you

the appearance, on the surface, of ice which has been lately skated upon. The enamel is full of scratches.

Some years ago, when I was young, I carried on a number of experiments to find the action of certain medicines. I tried an experiment on two incisors in the same mouth. One was polished with orange-wood and the finest pumice-stone, and the other not polished at all. I placed both under a microscope. The one which I had not polished presented a smooth, polished surface, and the other was covered with scratches. That was only one of many experiments.

Dr. Murlless.—When we have an accumulation on the teeth, and the danger from acids has been created by the decomposition of the accumulation, we are in the position of the man who said the practice of medicine was a choice of two evils.

Dr. Mills.—This is one of the most interesting subjects in the profession. You can polish a tooth and make it beautiful.

Dr. Smith.—Dr. Ryder has made some concessions which, it would seem, all dentists ought to take notice of. If these materials which are in the hands of every dentist in the land, I suppose, are so wonderfully injurious, so destructive to the enamel, it ought to be published and sent broadcast. If we have made this mistake for all these years, we ought to know of it. I have practised for thirty-two years, and have these materials every day, and have them in use for polishing the teeth. If they have done so much mischief, I ought to have known it and the profession ought to have known it.

Recess.

Dr. G. Lennox Curtis (New York).—I have not come prepared to talk on any one subject. I was in hopes of doing some work and letting you see how diseases of the jaw and face are treated, and it is quite a disappointment to me not to be able to do this. There has been but one case brought for examination, a case of antrum disease, which I endeavored to explain. I would like to talk on the subject of cocaine, upon which Dr. Mills desired me to speak. Since I have felt free to use cocaine in any solution, I use it with as much freedom as water. I would not hesitate, and do not hesitate, to use the saturated solution of cocaine in any class of disease, or for any class of operations, where cocaine can be applied with perfect safety to the patient. Only recently a patient whom I know had a very serious surgical operation performed in Baltimore

by Dr. Kelly, consisting of an abdominal incision and the walls of the bladder being brought up in contact with the abdomen to sustain it, the person having prolapsus of the bladder. This operation was performed with cocaine, the patient being unable to take an anæsthetic. The surgeon used volasen with the cocaine. He would not for a minute have thought of performing the operation with cocaine alone. The patient wrote me a letter telling me that the operation was performed with perfect safety, and he experienced no pain, though he was conscious. By the use of this antidote, which has been in the market for some time, you can use cocaine with impunity. It is a proprietary preparation, and, of course, physicians would not admit that they use it, but they do, and if they did not they should be condemned. Anything that will do away with the bad effects of cocaine should be used. It stimulates the respiratory and cardiac functions and prevents depression. It is given in from one- to five-drop doses before you inject the cocaine. If, after injecting the cocaine, you notice any functional derangement, repeat the dose. I follow the directions given on the label, and use it with freedom. This volasen is, in itself, a paralyzer, and, without cocaine, a teaspoonful will produce death. I would suppose that where an accident occurred, if you gave cocaine, it would antidote it.

In July, just as I was leaving my office, my house being closed for the summer, a dentist brought a patient for an operation. The patient would not take an anæsthetic. I spoke of this antidote and said that I would use cocaine. As my nurse had gone. I told the dentist that if he would take care of the case, I would operate. I prepared the volasen, pouring out the usual amount, and prepared my cocaine. In preparing cocaine I take a small glass of distilled water and throw in the cocaine without measuring, to get the saturated solution. I filled the syringe with a drachm of the saturated solution. (It was an extensive operation.) I picked up the syringe and went to work. I was just nicely started, when I found my patient crazy. It was all that we could do to hold the man. I remarked that it was a peculiar condition. I reached for the glass to give him more volasen, when I found that I had not given the volasen at all. Two minutes after giving him this, he was all right. That showed conclusively the power of the drug and the benefit. So I have suggested it for cocaine-poisoning where great mistakes of that kind have been made and two or three drachms of a ten-per-cent. solution of cocaine given. I do

not believe it is safe to wait; it should be given in advance of cocaine. I have never used this hypodermically. I imagine it would act more promptly. I will tell you of one or two cases in practice which show neglect on the part of the dentists, or else a lack of knowledge of how to diagnose abscessed teeth, and the great need for teaching in this line. In dentistry, as in medicine, most of the colleges are independent institutions, and they are organized to help a few men (if you will forgive me for speaking against the colleges); but I want to say that the heads of colleges will rarely put in a man who can demonstrate the value of new ideas. They want the same old men to stay and die in the colleges, when their places might be filled by hundreds of young men who are in poverty because of their love for science. Our colleges ought to put in men such as are found in the dental profession to-day. And there are men here who are thoroughly competent to teach pathology.

Here is the case of a woman, fifty-seven years of age, who for forty years had a swelling on the neck. This had been opened every year, with a discharge of pus. The physician said the disease was of the thyroid gland, of which it is said that a one-sixth part must always remain or the patient will be crazy. The first surgeon probably made this remark, and it was told to all the others, so they kept clear. Four weeks ago the physician called on me, told me of the case, and asked if I would see the patient. I remarked that, aside from the operation in the neck, the dentist could do the work. I told him that the trouble was an abscessed tooth. He replied that her teeth were perfect. I said, "I believe we will find a decomposed pulp." The teeth looked clear and bright and healthy, but on percussion, when I reached the lower bicuspid, I found that the sound was not the same. It was a leaden thud, which indicated an unhealthy condition. I explained that these teeth had decomposed pulps, and told the lady to go to the dentist and have them cleaned. She reluctantly followed my instructions, and later came into the office. The teeth had been properly cleaned. I operated on this case, and removed fully three ounces of pus from the cavity. It was a fistula. The patient's health is about restored, fever and pain have disappeared. She had been undergoing a surgical operation and was sick for some time every year. That case shows oversight.

Another case, which came under my notice in September, was that of a man who was seized with such a pain in his head that

he fell to the ground. The policeman took him to the lock-up, a safe place. After a while an ambulance was summoned, and he was taken to Bellevue Hospital and placed in the insane ward. He was afterwards placed in the insane asylum and stayed there two years. At the expiration of the two years he received a certificate stating that he was not insane, and was a proper subject for association with other people. I diagnosed the case. In percussing the teeth, as I reached over and struck the upper right first molar, I noticed a curve of the head. That was all. I hit it hard. The man remarked that it hurt. I sent him to his dentist to have the tooth extracted. On breaking the tooth open, it was found to contain pulp-stones. To this day he has not had a return of the pain. His business had been ruined because of the ignorance of the physician. Such cases are coming along all the time, where dentists are the best workers and medical men know nothing of the case.

In reply to the question concerning hyperæmia from pulp-stones: My principal way of diagnosing a case is by percussion. Any abnormal sound indicates disease. If there is a higher pitch note, I look for pulp-stones. The treatment is the same. The pain is rarely ever found in the teeth; it is in the brain or upper part of the head. In those cases of long-continued neuralgia which have resisted everything, you can generally look for the cause in the teeth. About ninety per cent. of these diseases come from the teeth. In fact, all diseases of the jaw and face are the result of affections of the teeth. The soreness or tenderness will indicate disturbance there. You can often find the place by electricity: apply it to a solid tooth, and you get a shock; also by the hot and cold water test, which is the poorest method of all. The ordinary test is of very little value. It is the knowledge gained by seeing these cases which tells. Diagnose your case by going from one tooth to another. If the pain is on one side, examine that side, tooth by tooth. Some people are much more responsive than others.

Dr. Codman (Boston, Mass.).—When the teeth are struck, do I understand that the pain is inside the teeth or beyond?

Dr. Curtis.—Beyond the teeth, rarely in them; if so, an exception.

Dr. Codman.—How is it that the tooth which has pulp-stones always lacks an articulating tooth?

Dr. Curtis.—I believe every tooth can be in the head and articulation perfect, and still have pulp-stones.

Dr. L. W. Fowler.—I have a case here of a man about nineteen

years of age. His teeth were perfectly even, the articulation perfect, the teeth all right so far as my judgment went. He had some trouble in the left side of his head. He had no idea that there was anything the matter with his teeth. He followed his physicians' directions. They prescribed drug after drug. After a while he gave up his business. He happened to be a brother-in-law of mine, and his case came under my notice. After he left his work I began to look up the case myself. I found that when the paroxysms came, the left eye would sink from the intense pain. He slept off from my room. One morning I awoke when he was in a paroxysm. He resembled a person with horrors, and expressed himself by saying, "Leave me. Leave me. I fell out of the window and broke in two, and you cannot do anything for me." I drew my attention to his teeth on the left side. I noticed a marked difference in percussion in the teeth on the left side. I told him if he noticed any soreness in a certain tooth, to come to my office. In about two days, after he had passed through another paroxysm, he came to my office. I removed the tooth. That was seven years ago, and he has had no trouble since.

Dr. Codman.—This articulation of the tooth took place long before the tooth had been extracted. Nature had been trying to obliterate the pulp.

Dr. Stowell.—I am positive that I have found pulp-stones where occlusion was normal. I can recall three such cases where occlusion was good and the teeth were perfect.

Dr. S. B. Palmer.—I cannot say that I can add anything. I had one case in particular. The patient was confined to a rolling-chair by rheumatism. She had paroxysms from one side of the face. The teeth were apparently in perfect condition. The paroxysms came at meal-times, and she was almost frantic with the pain. I concluded to extract the first superior molar. There was no choice for treatment, and I decided to extract the tooth, which I did and took it home. Instead of cutting it open, I ground it down and found the cavity filled with pulp-stones. There was no more trouble after the removal of the tooth. I have had several cases, but none so marked as that one. There is more trouble arising from the irritation of the pulp than we are aware of. In some cases trouble will arise in the clasped teeth, and in cutting them open you will find pulp-stones on the opposite side, as though nature had attempted to form some barrier and had filled the canals and the pulp-cavity.

The following officers were elected: President, Clinton W. Strang, Bridgeport, Conn.; First Vice-President, G. F. Harwood, Worcester, Mass.; Second Vice-President, A. J. Cutting, Southington, Conn.; Secretary, Edgar O. Kinsman, Cambridge, Mass.; Assistant Secretary, F. M. Wetherbee, Milford, N. H.; Treasurer, I. Tenney Barker, Wallingford, Conn.; Librarian, F. T. Murlless, Jr., Windsor Locks, Conn.; Editor, Charles McManus, Hartford, Conn.

Meeting adjourned.

CHARLES McMANUS,
Editor.

HARTFORD, CONN.

Editorial.

WHAT CONSTITUTES JUST CRITICISM?

THE active participator in the world's labor, whether he acts in the capacity of an editor of a daily paper, a journal, a reviewer of books, or as an individual, is called upon frequently to question the work of others, and this may or may not constitute criticism. Whether this be founded upon justice must be left to the judgment of those who read or listen.

Criticism, to have any value, must be founded on truth. Critics who make themselves prominent, whether as political speakers, ministers of religion, who use the pulpit for this purpose, editors, whose chief duty lies in this direction, or reviewers of books, all need to regulate their work to a high ethical standard if the critique is to make a satisfactory impression upon the judicial mind.

The political speaker who harangues his audience with exaggerated statements regarding his opponents cannot hope to find credence among intelligent auditors, no matter what their predilections may be. The minister in the pulpit who can find no better use for his eloquence than to declaim unjustly against a professor of an opposite faith loses caste among his parishioners, for charity and justice, always present in the human mind, will, in spite of bigotry and intolerance, refuse to believe all men have evil intent

save those of our own faith. The editor of the daily paper, above all other men, must view both sides of every question, and dare not attach motives that may have no foundation in truth. In no other walk in life is the broad-minded man, one above the petty fault-finding spirit, more essential than here, and while this character is not always a marked factor in the press of the country, it is to its credit that the editorial instinct is rarely at fault when political prejudice is cast aside and criticism is based on the merits or demerits of the subject in hand.

It is, perhaps, more often found that the literary reviewer is the chief offender in unjust criticism. The writers of books have very good reason to fear the pen-and-ink libels upon good work. While there are honest, painstaking critics who will read books from first page to the last and then give these their best thought, it remains true that many able workers have had their hopes blasted and a bitter poison injected into their lives through crude examinations and worthless opinions of so-called reviewers. This applies with equal force to scientific books as it does to general literary work. The readers of dental periodicals must have been frequently impressed with this in review of dental books. It is common to find a book notice that gives the impression that the writer read the title-page and preface and then began to pen a review. Another will glance at these appropriate introductions to a book, and then pick here and there for a morsel to give an acrid flavor to his production. Another will see nothing in the book but good things, because it has a prominent name on the title-page. The true critic will, however, sit down to read laboriously, page by page, select the good and note those things that do not accord with his judgment, and, having thus honestly and fairly absorbed all in the volume, he is prepared to take up the pen and do justice to himself and, possibly, the author.

The individual who assumes the duty of a critic may be good, bad, or very bad in his censoriousness. There is no limit to this sort of criticism. It is the gossip of the club, social life, or of the family, and there is no remedy for it but in the cultivation of the higher altruistic ideal, a charity that covereth a multitude of transgressions.

The foregoing reflections have had their origin in many observed delinquencies in every walk of life, and have been intensified since our February issue in various ways. In that number it was deemed necessary to call attention to an article from a cor-

respondent of the *Dental Review* who signed himself "Jesse," in which, under this anonymous signature, he sought to criticise the work of the National Association of Faculties. The reply of the editor of this journal has been criticised, in the present number, upon another page. It is not considered necessary to magnify this matter into unusual importance, and it would have been considered settled if our correspondent had not regarded it as his duty to take up the defence of "Jesse." His letter is written in such a fair spirit that it impels an answer. It is a good type of an honest criticism, although he seems to have missed the chief contention of the editorial in question. The editor of this journal has no reason to modify anything stated at that time. The article of "Jesse" belonged to a type of criticisms that makes much of little and distorts matters seemingly to effect an object. The personality of "Jesse" was then, and is now, unknown to us, and therefore, personal reflections cannot be charged. He may be a teacher of high reputation; if so, it makes the matter all the more serious to publish this statement: "As things are now, when a college is admitted to membership,—and almost any new 'old thing' can be so admitted,—it at once becomes the peer of the best."

Honest criticism is to be encouraged; indeed, it is necessary to the progress of peoples and organizations. It will be a sad day when the leading dental associations, colleges, and universities have no one to weigh the good and the evil in the balance of critical thought. The National Association of Dental Faculties is an open body. While it excludes all but members of Faculties from its deliberations, its work is open to the favorable or unfavorable opinions of all in the dental profession. It tacitly invites critical judgment of its proceedings, but resents the kind of criticism indulged in by "Jesse" as an attempt, apparently, to make things appear to the outside world as they do not to the members of that body. If he, or our correspondent, has anything that can be substantiated concerning the Association of Faculties, our pages are open, but they are not free to unsupported charges upon that body or any other that aims to do good work. All organizations are human in their origin, and consequently defective to that degree, but the motives that control to action and the reasons for their existence must be the influence that guides the pen in criticising their work.

It must be repeated that the writer of this is fully aware that dental colleges, as a whole, do not measure up to the highest stand-

ard, but this is true of all educational institutions. Not one in this country, or any other, it is assumed, comes up to the ideals of those engaged in them. It is possibly more true of dental colleges than of others, for the very excellent reason that these schools have had to be built upon the experience of the past fifty years. There were no precedents to follow save that afforded by the medical colleges, and these were often blind leaders and have led, more than once, dental teachers astray and into paths not adapted to our work.

Our correspondent seems to think that the commercial side of dental college work is peculiarly worthy of criticism. In the opinion of some others, this, if it means a business ability to make ends meet, is especially worthy of cultivation. It is folly to suppose that colleges can be maintained without endowment or some means of support. The universities are all struggling, unless State aid is afforded, to keep away from a yearly deficit. The dental schools having no endowments to depend upon must look to the returns from students to meet expenses. That some may be guilty of overstepping the bounds of legitimate work in securing students is possible, but, if so, it must be rare, as stated in a previous article, and almost certain of discovery.

The honest mind in the dental profession cannot look upon these repeated attacks upon colleges with anything but a feeling of contempt. If made by one of the dental faculty, it carries with it additional weight, and is received gladly by a certain character of mind, ever ready to see the bad, but never prepared to welcome the good in human effort. The desire of earnest thinkers is to build up to higher things. This may be by imperfect methods, but they are ever advancing and growing nearer to that perfection which is the ideal of the true-hearted in all the avocations of life.

Bibliography.

THREE THOUSAND QUESTIONS ON MEDICAL SUBJECTS ARRANGED FOR SELF-EXAMINATION. Second Edition. Enlarged. P. Blakiston, Son & Co., Philadelphia, 1899.

This small book, suitable for carrying in the pocket, has a certain value for medical students, obliged to keep constantly in

mind a great multitude of facts. The answers to questions are here wisely omitted. This means, necessarily, research and a positive impression upon the mind. The questions cover reasonably well the various subjects. The questions on dental pathology are by no means satisfactory, and should, in future editions, be added to or omitted altogether.

TRANSACTIONS OF THE IOWA STATE DENTAL SOCIETY AT THE
THIRTY-FIFTH ANNUAL MEETING HELD AT DES MOINES,
May 3, 4, 5, and 6, 1898.

There is always a satisfaction, in looking over the transactions of a society, in having them placed before the reader in clear type and tasteful binding, and this Society is to be congratulated that its proceedings are presented in a manner that invites a careful examination of the contents.

There is much in this volume worthy of preservation, but it would have been better had the blue pencil of the editor been more freely used. It is a mistake, too often made, to publish everything reported by the stenographer. The crudities given out in discussion are the terror of all editors, but while they suffer by virtue of their office, the lapses from good English should not be permitted to go out to the world in cold type. These can only be eliminated by erasing without fear or favor.

Domestic Correspondence.

LETTER FROM DR. BARRETT.

TO THE EDITOR:

SIR,—The following is only one of a number of similar letters already received by the Dental Department of the University of Buffalo, all of which have received like answers. It shows how widely the fraudulent college has sold its degrees, and the use which is being made of the counterfeit diplomas. Suit has been commenced against the institution named, and a decree against it has been obtained, but as it has *eight* different charters granted by the authorities of the State of Illinois, it will take time to close

it up altogether. It is hoped that before the annual meeting of the National Association of Dental Faculties in August next, such legislation will have been obtained as will put a stop to the infamous diploma traffic by the dozen different irregular colleges of Chicago and the West.

BUFFALO, N. Y., February 10, 1899.

"BUFFALO DENTAL DEPARTMENT:

"Being a graduate of the ——— Medical College of Chicago, Ill., I take the pleasure in asking you how many years you will allow me in your college. I have a diploma of D.D.S., and wish to graduate from your college. If you will allow me any length of time I will start next term. Thank you for your kindness.

"Truly yours,

"O. B."

(Answer.)

"O. B.:

"SIR,—Your letter is at hand, and I must say that your assurance astounds even me, accustomed as I am to such insulting propositions. If you hold a diploma from the college named, you bought it, and have no more knowledge of medicine than you had before the bargain. You know it to be a fraudulent concern, and I know that the man who will try to profit by such a transparent fraud is no better than the miserable concern whose diploma he attempts to use. The man who knowingly tries to put a counterfeit in circulation is no better than the original counterfeiter. Your diploma is a badge of disgrace, and this college would consider itself dishonored by the presence of such a man among its students. Under no circumstances would we receive you, even though you should offer us ten times the usual fees. You would contaminate the very atmosphere of the college.

"Furthermore, let me inform you that the honorable profession of dentistry is taking steps to prevent the intrusion of men who attempt to obtain admission by fraud. We have commenced suit against this so-called 'Medical College,' which has advertised its wares so extensively, and have substantially a decree against it. We shall have full lists of the 'graduates' of the fraudulent concern, and they will be published, so that they may be excluded from all decent colleges. Not only will you be unable to profit by your intended fraud, but you will be severely punished if you attempt to make use of it. In this State it is a penal offence to attempt to use such a diploma, and if you even show it to others I promise that you shall see the inside of a jail.

"All this is of course based upon your own statement, which I understand to be that you hold a diploma from a fraudulent college and are attempting to use it for your own benefit. If this is not the case, then what I say has no application.

"Yours as above,

"W. C. BARRETT,
"Dean."

REPLY TO EDITORIAL IN FEBRUARY NUMBER.

TO THE EDITOR:

SIR,—In the editorial pages of the February INTERNATIONAL DENTAL JOURNAL a vigorous and scathing article appears against an anonymous correspondent of another journal, and an editor whose “moral sense was not above publishing a scurrilous letter.” A selected part of the letter was quoted, and reference made to the December (1898) number of the *Dental Review* where the entire letter could be found. I had not seen the letter until attention was called to it by the doughty editorial in the INTERNATIONAL; then, after reading it with careful consideration, I really failed to discover the *offence* which could so excite the gush of gory ink from a critical editor’s pen. In the first place, the brief quotations from the letter do not, it seems to me, justly express the trend of “Jesse’s” criticisms, for the discussion of the physical and moral caliber of new students, and all such subjects, on the part of the chiefs of the Faculty Association were distinctly acknowledged as important, the following words of the letter expressing this: “*All of which is proper and just to everybody concerned.*” The ethical conceptions and business methods, the disreputable practices, or let us rather say, the unprofessional standards adopted by some of the colleges wearing the cloak of the Faculty Association in their methods of winning students, by employing runners, offering special inducements, “steering” of the unsuspecting, and making false promises,—seem to me to be the prominent and pertinent points in the criticisms of “Jesse” in the *Review* letter. It cannot be true that editors have rights of criticism that *nom de plume* writers have not.

A man may smile and smile and be a villain still, and a college may even teach anatomy and advertise “all the requirements of the Faculty Association strictly adhered to” in its catalogue, and yet resort to “skullduggery”—whatever that may imply—in its business methods.

If all the colleges which have been admitted to membership in the Association, and who wear the badge of the Association,—which, like the button of the Legion of Honor, should distinguish the wearer as high-toned in ethical as well as educational matters,—were pure in this respect, why is it borne in on the minds of teachers that students have, within a few years, imbibed the im-

pression that *dollars* are an important factor as a force to influence deans and secretaries of first-class dental colleges? Why is it that the opinion prevails that dental colleges and large department stores are becoming more and more mercenary in character? The reference in the editorial to the great financial loss that the college sustains which was expelled from the Association shows the necessity for all sorts of ventures in the dental college business to acquire membership of the Faculty Association. This in a way may elevate the standard of dental education, but it does not necessarily make the college reputable as far as its business and ethical character is concerned.

From observations among practising and teaching *confrères*, I have to admit that these notions are held, and are becoming more general than they were, say, five years ago; and I am disposed to believe with "Jesse" that it has developed from the display of the competitive business spirit among colleges hiding under the mantle of the Faculty Association; therefore, when he points to this stain on the mantle (and I do not know of any better way for an outsider to do this than through the dental press), and calls upon the Association to notice it, and scour it till it shall be as Caesar's wife, and wishes in his modesty to hide his name under a *nom de plume* (the name and rank must be known to the editor of the *Dental Review*), I fail to perceive the infamy of the thing, or the libellous character of the letter, or the guilt of the editor in publishing it.

I am rather disposed to regard the editorial as unfair and not quite *apropos*, and to beg of the writer of the same to review the matter and modify his "criticism."

Yours very truly,

C. M. WRIGHT.

CINCINNATI, OHIO.

AMERICAN MEDICAL ASSOCIATION.

TO THE EDITOR:

SIR,—The next meeting of the American Medical Association will be held in Columbus, Ohio, June 6 to 9, 1899.

The Section on Stomatology will be of unusual interest, since its programme will be unlike any ever presented at any other dental society meeting. It will be made up mostly, if not entirely, of

original papers, although the papers presented before this section have always been of high order. Papers upon the manipulation and technique of operations and mechanical dentistry are never read at these meetings. Only such subjects as are of interest to the dental and medical professions are received. These papers have always been selected by the secretary with the greatest care. There is no business to transact in the section. Everything in this matter is referred to the Business Committee (composed of the last three retired chairmen of sections), which meets every afternoon at five P.M. to consider the welfare of the whole Association and of each section. These matters are discussed, and, if favorably considered, they are reported favorably to the general meeting. This method relieves the sections and general meetings of considerable routine and unnecessary work, and also gives more time to do the regular business.

On Tuesday afternoon a committee of three is appointed in each section to nominate officers, a chairman and secretary for the following year. The committee reports Wednesday, at which time the candidates are elected. Since the offices of chairman and secretary carry no great honor, there is very little desire on the part of the members for the position, hence politics never mar the session.

With the exception of a few years, the present secretary has been in office continuously since the section was established, eighteen years ago. There are many advantages in having a permanent secretary, since a new chairman is elected nearly every year; a permanent secretary is familiar with the methods of conducting the section, and knows just whom to call on for papers, no matter in what particular part of the country the Association may meet. The character of the papers are always under his supervision. With his general knowledge of the workings of the general meetings, as well as the section, if he is interested the work goes on without friction.

The meetings of the Section on Stomatology are never largely attended, principally for the reason that there are no attractions except the advancement of dental science. The smallest attendance at any one session was twelve; the largest was ninety-six, with an average of twenty-eight.

The members of the Section on Stomatology have never encouraged or desired numbers. They have always felt that an attendance of even ten or twelve who were good thinkers and talkers and of sufficient intelligence to discuss the various papers presented

was much more to be desired than a large number of uninterested people.

Dentists are admitted in the same manner as physicians. Dentists holding the D.D.S. degree, upon presenting credentials from their State or local society and the payment of five dollars, can become members of the Association, which also entitles them to the *Journal of the Association* for the coming year.

Any one who wishes to attend the sessions of the Section on Stomatology is permitted to do so.

The following list is the preliminary programme of the meeting to date:

Chairman's Address, Dr. G. V. I. Brown, Milwaukee.

"Actinomycosis," Dr. Ludwig Hektoen, Chicago.

"Evolution of Decay" (further experiments), Dr. A. C. Hart, San Francisco.

"Cocaine and Eucaine; their Relative Toxicity" (the results of original investigation and experimentation upon human, as well as animals), Dr. A. H. Peck, Chicago.

"Epithelial Structures in the Peridental Membrane" (original investigation), Dr. Frederick Noyes, Chicago.

"Infectious Ulcerative Stomatitis," Dr. John Marshall, Chicago.

"Oral Surgical Operation" (with illustrations showing remarkable results), Dr. G. V. I. Brown, Milwaukee.

"Some Points on the Etiology, Pathology, and Treatment of Persistent Pyorrhœa Alveolaris," Dr. G. T. Carpenter, Chicago.

"Interstitial Gingivitis" (so-called pyorrhœa alveolaris), giving the result of original work with large photographic illustrations showing the progress of the disease from the beginning to the exfoliation of the teeth, Dr. Eugene S. Talbot, Chicago.

"Syphilitic Infection from Dental Instruments, with Cases," Dr. W. L. Baum, Chicago.

"Professional Education and Ethics," Dr. A. E. Baldwin, Chicago.

A revised and complete programme will appear in the May number.

G. V. I. BROWN, *Chairman.*

EUGENE S. TALBOT, *Secretary.*

Notes and Comments.¹

JOURNALISTIC CHANGES.—In the March number of the *Dental Brief*, Dr. T. B. Welch announces his relinquishment of its editorial management. After many years of faithful and conscientious work Dr. Welch lays down the pen that has proved so helpful to his many readers, both morally and professionally.

With the April number of the same magazine, Professor Wilbur F. Litch assumes editorial control. The new incumbent is so well known in the dental world, both as a teacher and writer, that he will receive a most hearty welcome from every quarter. It is with pleasure that we welcome him to the ranks, and feel assured that we shall all receive much stimulus from his able pen. Our best wishes go to the new editor of the *Dental Brief*, and we congratulate the publisher upon securing the services of so eminent a man.

WE regret the loss of two of our contemporaries, the *American Dental Weekly* and the *Dental Practitioner and Advertiser*. We were always glad of the weekly visits of the former, and looked forward with interest to the time for the arrival of Dr. Barrett's quarterly. It is hoped some avenue may be opened that we may continue to hear from both these energetic editors.

"INFORMATION."—This neat, home dental magazine, conducted by Dr. L. P. Bethel, has just made its fifth visit. It is breezy and filled with good and interesting material. We bespeak for it a successful and most valuable career. If this magazine could be placed in the schools and public libraries, it would no doubt do much towards solving the difficult problem of educating the public on dental matters.

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

PROFESSIONAL RECRUITS.—What Dr. Taft writes we always read with interest. His experience and standing in the profession entitle his opinions to much consideration. But we cannot but be a little amused at his schemes for providing homes for the sixteen hundred annual recruits to dental ranks, with an increasing ratio. It will be seen that the doctor is laying hold of the recently acquired territory for homes for some of them, and he goes to foreign fields with others, while he decimates the veterans at the rate of four hundred and eighty per annum.

There is no doubting the fact that the multiplying of colleges is rapidly multiplying the ranks of the profession. With the good doctor's figures, we will have to acquire more territory before many years to find homes for our recruits.—Editorial in *Western Dental Journal*.

THE EGOTIST.—I suspect a dentist of being shallow that knows it all, that replies to every suggestion, "That's nothing new; I know a better way than that," and is always ready to show you what he can do. He may be smart, but he is certainly egotistic, and he is probably so self-opinionated that he deprives himself of much he could learn by being more teachable. The wisest of us can be taught something; the most skilful can get new points, and none of us know it all.

At our conventions we can generally discern the most learned and skilful by their teachableness, simplicity of manners, and the modesty of their statements.—DR. T. B. WELCH.

Current News.

NEW ENGLAND ASSOCIATION OF DENTAL EXAMINERS.

THE Third Annual Meeting and dinner of the New England Association was held at the Algonquin Club, in Boston, on the evening of February 16, 1899. Dr. John F. Dowsley, President of the Massachusetts Board, presiding. There were present as guests of the Association Dr. L. D. Shepard, of Boston, and Dr. C. A. Brackett, of Newport. Regrets were read from Dr. C. A.

Meeker, Secretary of the National Association; Dr. Civilion Fones, of Connecticut, and Dr. J. Searle Hurlbut, of Massachusetts, who had hoped to be present.

Great interest was taken in the object for which this Association has been formed,—namely, to raise the standard of examinations in New England to one of uniform requirements,—and as a result two of the New England States have had their dental laws so amended as to bring them in line with their sister States. It is the ardent hope of the Association that in course of time a law so nearly perfect will be enacted as to render feasible an interchange of certificates in New England.

An election of officers for the ensuing year resulted in the choice of Dr. D. F. Keefe, of Providence, R. I., President; G. F. C. Cheeney, of St. Johnsbury, Vt., Vice-President; Geo. L. Parmele, of Hartford, Conn., Recorder. The following ex-members of State boards were elected honorary members: Dr. C. A. Brackett, of Rhode Island; Dr. J. Searle Hurlbut, of Massachusetts; Dr. Civilion Fones, of Connecticut; Dr. L. D. Shepard, of Massachusetts; Dr. R. B. Miller, formerly of Maine, and Dr. James Lewis, of Vermont.

GEO. L. PARMELE,
Recorder.

DENTAL SOCIETY, STATE OF NEW YORK.

THE Thirty-first Annual Meeting of the above Society will be held in Albany, May 10 and 11, 1899, and the following programme will be presented:

President's Address.

Report of Correspondent, R. Ottolengui, M.D.S.

Report of Committee on Practice, L. C. Le Roy, D.D.S.

Essay, L. D. Shepard, M.D., D.D.S., Boston, Mass.

Essay, R. M. Sanger, D.D.S., East Orange, N. J.

Essay, William Hailes, Jr., M.D., Albany.

Essay, A. Retter, D.D.S., Utica.

A cordial invitation is extended to all reputable dentists to attend the meeting.

F. LE GRAND AMES, *President.*
CHARLES S. BUTLER, *Secretary.*

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Original Communications.¹

THE PREDISPOSING FACTOR IN DENTAL DISORDERS.²

BY EDWARD C. KIRK, D.D.S., PHILADELPHIA.

IN studying the morbid phenomena found in the oral cavity there has been a tendency among members of the dental profession to view the problem in a somewhat restricted manner; to overlook the broader aspects of the subject presented by its relations to the whole organism, and the still broader significance of its biological relations. It is this factor in the development of a specialism in any department of human inquiry which is restrictive of the highest rate of advancement, and which should therefore be carefully guarded against so far as that may be possible.

Happily, the stimulus which a few investigators have given to the spirit of original research in dentistry is bearing good fruit, and the practical advantages of scientific over purely empirical methods of inquiry are making an impress upon our practice which is placing it more and more upon a rational basis.

The result is clearly seen in our literature, especially as it reflects the views now held with respect to dental pathology in com-

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read before the Alumni Association of the Boston Dental College, February 8, 1899.

parison with the narrower views of former years. The investigations of cytologists have opened up vistas of knowledge giving us a comprehension of cell-development and function which has furnished us a firm basis upon which to build a rational understanding of physiology and pathology, and which is rapidly bringing these important branches of study into line with the exact sciences by resolving nearly all of their phenomena into problems of physics and chemistry.

Dentistry has not only felt the influence of this progressive movement, but has contributed in no small degree to its growth. The results of original investigation in the domain of dental histology and dental pathology are monuments of which we may well be proud; yet it is research within the comparatively narrow limits of a specialty, as already noted. I would not be understood as maintaining an attitude of adverse criticism in stating the case as I have, but rather as indicating the desirability, if not the necessity, for a broader scope to our horizon in order that our professional grasp may be more comprehensive.

I can perhaps best illustrate the view-point which I am endeavoring to present to you by asking your consideration of certain predisposing factors in dental pathological conditions which directly bear upon the necessity for a broad study of principles rather than precepts in our specialty.

The study of the human organism, both in health and in disease, has quickly resolved itself into a study of the development and vital phenomena of the cellular elements of which it is made. Not until we have attained a fair understanding of cell-development and function is it possible to intelligently comprehend the vital phenomena of the organism as a whole, and especially these aberrations from normal standards of cell-function which we designate disease.

At the very outset of our investigations of cell-function we are met by an apparently insurmountable difficulty,—namely, the phenomenon of vitality, of life. All attempts at a comprehension, much less an explanation, of it are baffled by the fact itself. Yet when viewed as philosophic abstractions the same difficulty confronts us when we study matter or force in any of their manifestations to our senses; nevertheless, we understand enough of the properties of matter and of force to make them in many ways subservient to our needs, and so in a practical sense we comprehend

them. So also in a limited sense we may comprehend vitality as a function or attribute of protoplasm, and for purposes of physiological study regard it as a form of energy the product of chemical changes associated with cell-metabolism.

Physiologists teach us that, "broadly speaking, the animal body is a machine for converting potential energy into active energy. The potential energy is supplied by food, this the metabolism of the body converts into the actual energy of heat and mechanical labor," and as what is true of the mass is also true of its parts, the same view is true of the cellular elements of which the body is composed. In fact, it is through the metabolic agency of the cellular protoplasm that the potential energy of food is rendered kinetic. It is in connection with this transmutation of energy that vitality is made manifest, and with the metabolic process it bears a direct relation quantitatively.

With these propositions before us it is not difficult to realize that a maximum cell vitality is attainable when the supply of food potential to the cell is harmoniously adjusted to its metabolic capacity, and that any alteration of its nutritive balance must necessarily work a corresponding decrease in vital potential with an attendant alteration of cell-function.

It is these alterations of nutritive balance in the cell and attendant disturbance of function that constitute disease. The causes which lead to disturbances of cell-metabolism and diminution of vitality may arise within the organism itself or be introduced from without, and, further, the disturbance may be local or it may be general.

When the disturbing factor is a specific irritant introduced from without we regard it as the exciting or active cause of disease; on the other hand, when the disturbance is preceded by an interference with cell vitality due to faulty metabolism we classify the latter as a predisposing cause.

It is evident that the factor of vital potential is a safeguard against invasion by the multitudes of lower organic forms which are pathogenic to the human organism and which are ever-present factors of its environment. Vitality is the defensive force of the organism against pathological attack, and is, in general terms, effective in proportion to its degree of potentiality.

It is not my purpose this evening to consider the invading enemy so much as the defensive forces of the organism, and to ask

your consideration of some of the conditions which lead to a weakening of the vital potential and the bearing of this upon certain oral lesions in which we are all presumably interested.

Time will not permit of the study of that large class of acute inflammatory processes the result of specific infections by micro-organisms of the more active and virulent type, nor a study of the factor of immunity in relation to them; the most that I can hope to do is to briefly sketch some of the predisposing factors which are apparently closely related to the inflammatory disorders affecting the retentive apparatus of the teeth.

Attention to the disease designated by Black as phagedenic pericementitis was actively revived by the announcement of Peirce, in 1892, that its etiology was to be found in its connection with the gouty diathesis, a conclusion which he reached in view of the results of certain analyses showing uric acid to be a constituent of the concretions found upon the roots of teeth affected by the disorder in question. That Peirce's view contained a large element of truth is demonstrably true; that it was the whole truth even its author did not claim; but by the direction which his observations gave to the thought of investigators we are gradually unravelling the entanglement of mystery which has for so long involved the study of this disorder.

Uric acid, as is well known, is one of the waste products of cell-metabolism; it represents in part the excess of nitrogen thrown out in the process of tissue metamorphosis, and is, within certain limits, one of the normal products of nutrition. Like all other waste products of vital action, it is poisonous to the organism that produces it if not normally eliminated or if produced in excess. Haig places the ratio of uric acid formation to that of urea from 1 to 33 to 1 to 35 as the normal, and when in excess of that quantity regards it as productive of disturbance in the economy acting as an irritant poison.

The effects of chronic uric acid poisoning have been pretty fully studied, its action upon the nervous system in the production of migraine, various neuroses, neurasthenia, indigestion, catarrhal affections, gouty manifestations, nephritis, and general malnutrition are all well known. It is, however, not only directly pathogenic by reason of its irritative effect upon the tissues, but indirectly so by the power which it has to diminish the bactericidal activity of the blood plasma, as shown by the experiments of Pan-

sini and Calabrese (1894). These investigators found that the addition of uric acid to blood overcame the activity of the alexins or defensive proteids produced by the white blood-cells. An organism saturated with an excess of uric acid becomes more vulnerable to invasion by disease-producing bacteria.

While a rôle of pre-eminent importance has been assigned, no doubt justly, to uric acid in disorders consequent upon general malnutrition, investigation of the phenomena incident to uric-acidemia has developed the important discovery that uric acid is by no means wholly responsible for all of the pathological results which have been attributed to it. It has been shown that a related group of substances, the so-called alloxuric bodies, are chargeable in some instances, to even a greater degree than uric acid, with the production of pathological manifestations in the economy. The alloxuric bodies are, like their congener uric acid, waste products of nitrogenous metabolism.

An interesting problem presents itself in attempting to explain the relation of these waste products to the disorders with which their existence in the blood is associated,—*e.g.*, gout, malnutrition, etc.

Alexander Haig and his followers take the view that uric acid in excess is due to faulty dietetics, insufficient exercise, etc., and that the waste products are taken up by the blood and act as chemical or even mechanical irritants to the tissues fed by the blood-stream, the tissues responding pathologically in the order of their relative resistance to the morbid influence. More recently this view has been combated. Horbaczewski and others have shown that uric acid is produced by the splitting up of the nuclein of the white blood-cells, and that an abnormal increase of these cells is coincident with an increase in the production of uric acid.

It has further been demonstrated that irritation of the vasomotor sympathetic is followed by a leucocytosis, hence the conclusion is that excessive production of the alloxuric bodies is the result of a neurosis; not the cause of the disease, but its effect.

Neusser has, however, shown that the alloxuric bodies are irritant to the sympathetic nervous system, and it would therefore seem, in considering the operations of these substances as disease factors, that we have to do with a so-called vicious circle, regardless of the initial cause; if we accept the facts as stated, then irritation of the vasomotor sympathetic induces increased formation

of leucocytes, which causes excessive production of uric acid products, which in turn bring about increased irritation of the sympathetic and repetition of the steps of the process indefinitely.

Aside from the experimental studies by Peirce, our grounds for considering these matters as related to inflammatory conditions of the periodontal membrane and its surrounding tissues are those furnished by the clinical study of cases.

The constant association of phagedenic pericementitis with nearly all well-marked cases of lithæmia must now be regarded as something more than a mere coincidence. Much antagonism to the so-called "uric acid theory of pyorrhœa alveolaris" has grown out of the assumption that all cases of pyorrhœa alveolaris were believed to be due to excess of uric acid in the blood. No such sweeping claim was ever made by the supporters of the theory. It must be generally recognized by all who have carefully observed the clinical aspects of the disorder that necrotic inflammation of the retentive apparatus of the tooth is induced by any cause that will depress the vital potential of its elements to a point where bacterial invasion becomes a factor in the process. But that the systemic condition known as lithæmia, or uricæmiæ, by which is meant a constant over-production and imperfect elimination of the waste products of nitrogenous metabolism, is a most potent factor in the reduction of vital resistance in the tissues alluded to is also equally evident.

I have admitted the bacterial element as a possible exciting cause, even though it has not yet been demonstrated, not because I am wholly convinced that it is a necessary factor in explaining the etiology of the disorder, but because in the later stages of the process it is necessarily present, and then undoubtedly plays a rôle of more or less importance. The tendency to ascribe all inflammatory conditions to bacterial irritation is as faulty, in view of the facts, as to ascribe all forms of pyorrhœa to uric acid poisoning.

We should not overlook the fact, however, that these waste products of nitrogenous metabolism are irritant and even poisonous to the tissues when present in sufficient quantity or when their action is prolonged indefinitely, and there would seem to be no sound reason why, under favorable circumstances, their function as predisposing factors should not become resolved into the exciting cause of the disease process under consideration.

Their action in inducing certain forms of nephritis has been pretty clearly demonstrated, and likewise their etiological relation to arterial atheroma. They act as protoplasmic poisons, and in so doing they differ in nowise excepting as to degree of virulency from the poisonous excreta of bacteria in their effect upon the tissue elements.

In our study of the progressive necrotic inflammatory process known as phagedenic pericementitis it would seem that our conceptions of its nature, especially in its earlier manifestations, have been modified, if not hampered, by the definitions of inflammation arranged for us from the point of view of the bacterial pathologist. The presence of specific bacterial exciters of the inflammatory process seem in many cases to have been assumed as necessary to the inflammatory action. But the scientific method requires that a definition be fitted to the phenomena, not the phenomena to the definition. Pathology furnishes many examples of tissual reaction towards irritant substances other than bacterial excreta which in their essential characteristics are entirely analogous to so-called true inflammation, and which should be included in any comprehensive definition of that process.

It is, in the opinion of your essayist, to the class of non-bacterial inflammatory tissue reactions that phagedenic pericementitis in its earlier stages belongs, and that the toxic irritant is the group of alloxuric bodies which, as the result of faulty metabolism, find their way into the blood-stream and thence to the membranous investment of the tooth, that are the active cause of degeneration of the tissue in question, and, should the irritative influence be of sufficient intensity as related to the vital resistance of the elements of the membrane, may and do cause its molecular necrosis with attendant inflammatory reaction.

I have elsewhere drawn attention to the acute and chronic forms of the disorder as clinically manifested in pericemental abscess and chronic pyorrhœa alveolaris respectively.

It will be seen that in the view here presented the disease has a strongly indicated constitutional origin, certainly so far as its predisposing cause is concerned, so that, if it is to be successfully combated, the systemic vice must first of all be eliminated as a controlling factor.

This phase of the treatment naturally falls within the sphere of the physician, yet in my own experience I have found but a

small minority of physicians who have given the subject more than superficial consideration. For that reason it may not be out of place to refer to a few of the clinical phenomena which these cases present, in order that they may help us not only to recognize the condition, but to indicate to the medical adviser the lines along which his efforts are needed.

A constant symptom which is or has been present as the earliest manifestation of error in the nutritional process is constipation. Nearly all patients will admit that they were in good health and had no evidences of the dental disorder until after a constipated habit was fairly established. Usually there is a history of more or less indigestion, both gastric and intestinal, fermentative in character, with acid eructations and flatus, headache, vertigo, palpitation of the heart, nervous irritability, pain at times in the epigastric region, diminished flow of bile, loss of memory, despondency, loss of physical vigor, inability to work without great effort and fatigue, and the general train of symptoms coincident with general ill-health.

The degree in which these symptoms are manifested marks pretty clearly the extent of the disorder. The mouth conditions are those which are characteristic of typical phagedenic pericementitis. The factor of constipation in these cases is important, and should be eliminated as quickly as possible. The rationale of the pathology is within certain limits sufficiently clear. The waste products of nutrition and food *débris* carried off by the intestinal canal are in themselves poisonous to the human organism if re-sorbed into the system. Add to this source of toxæmia the further factor of putrefaction of the intestinal contents through the agency of micro-organisms usually present, and the toxicity of the mass is enormously increased. Retained within the canal these poisons exert a paralyzing action upon the cells of the intestinal walls and thus destroy peristaltic action, so that artificial means for evacuating the intestine becomes necessary.

As intestinal toxines produce paralysis of peristaltic action, so in an analogous manner do they act as protoplasmic poisons to other tissues to which they may be carried by the blood. It is in this way that they become factors in the irritation of the peridental membrane along with the other waste products of nutrition and of faulty metabolism.

The influence of food habit in this class of cases is of prime

importance. Faulty metabolism may be found in the plethoric as well as the anæmic type of individual, and a dietetic scheme which would operate favorably in the one class would be unsuitable to the other. Personally I believe it to be a mistake to interdict the use of red meats and other staple forms of nitrogenous diet as a routine measure in all cases. A liberal allowance of meat in anæmic cases is of positive value.

Carbohydrate foods, especially as sugar, should be avoided or sparingly used, the main principle being to give a nutritious, easily digestible diet regimen, and one not easily fermentable. The treatment of the constipated habit should not include cathartics, but laxative foods, bran bread, fruit, etc., with occasional small doses of Hunyadi water or sodium phosphate if occasion demands an aperient. The use of lithium salt is desirable and the bitartrate is of the highest efficiency in its class of compounds. Liberal use of water, at least two quarts *per diem*, is a valuable aid in washing out the waste products from the system. A thorough hygienic regimen, including all factors conducive to a return to normal health, should be rigidly enforced. All wasteful expenditure of nervous energy is to be avoided; exercise, bathing, and sleep are to be utilized in their proper degree and place for their value in restoring the vital potential of the tissues and general bodily vigor.

I have merely indicated some of the more important lines of treatment, which must be modified or amplified to meet the needs of individual cases. The selective feature which these toxins of faulty metabolism seem to show for the ligamentous structures and particularly for the peridental membrane is noticeable and interesting. It has been suggested, with apparently some justice, that as these dense fibrous structures have relatively less vascularity than many other tissues, and as they are required to perform a relatively large amount of mechanical work, their resistance to toxic irritants is proportionally less than those tissues having a more generous vascular supply and which are well supplied with lymphatics. That the vital resistance of the peridental membrane is of a relatively low grade is shown by the readiness with which those teeth which are subjected to undue strain succumb to pyorrhœa when the tendency is present, as in malocclusion, undue force in wedging, the improper use of ligatures, clamps, etc. The traumatism or strain upon the tissue lessens its vital resistance and makes the membrane of the particular tooth a point of diminished resistance.

I have purposely confined my presentation to but a limited field in order that the protean character of the manifestations of faulty nutrition might not tempt us too far afield in the consideration of what is certainly one of the vitally important problems in our professional work.

After the reading of the paper a number of illustrations of the glandular structures, described by Dr. G. V. Black as existing in the peridental membranes, and others showing the general histological structures of that tissue, were thrown upon the screen and described by the essayist.

FACTS VERSUS TEACHING.

BY DR. S. B. PALMER, SYRACUSE, N. Y.

IN the regents' dental examination representing the New York State Dental Society, the following question, in various forms, has been repeated relating to chemistry and metallurgy: In what order should metals be fused in making dental alloy to avoid volatilization? In comparing answers for several examinations the average would be about seven, to fuse the tin first, and add silver, copper, gold, etc., against ten, to commence with the high-fusing metals and descend according to the fusibility of the constituents. Figures show that more than fifty per cent. of the answers are wrong. I do not make this criticism against teachers or text-books, nor in any way to locate the source from which the error comes. It is most surprising that facts have been so long overlooked, since the principle has been promulgated many years.

The following quotation from "Plastics and Plastic Fillings," by J. Foster Flagg, page 62, edition of 1881, clearly defines the process, which is an embodiment of practical facts: "For the making of alloy, the hessian, or sand crucible, is used. In this is first fused a very liberal portion of borax, sufficient in amount to fill the crucible at least one-third full of the molten salt. This is intended for a flux. Any ordinary coke- or coal-fire is all that is required for the 'melt;' but it is, of course, more systematically, and perhaps more readily, done at the usual dental, or smelting forge-fire. Having perfectly fused the borax in it, *the tin is melted*

first, requiring but a low temperature, and after it is melted the granulated silver is added.

“It is remarkable, when the high fusing point of silver is considered, with what facility this metal is taken up by the molten tin. These two metals are thoroughly stirred together with an iron rod or clay pipe-stem of small size and suitable length, and when completely incorporated the copper—small pieces of wire—is added. Thus, like the silver, notwithstanding its first fusing-point of almost 2000° F., it is soon melted, and may be equally homogeneously mixed. Lastly the gold is added, melted, and all are thoroughly stirred together with the iron rod or pipe-stem. When perfectly melted and mixed, the fused mass should be quickly poured into a broad, open, flat, shallow matrix, made of iron or soap-stone; this favors prompt cooling, and thus secures the greatest uniformity of distribution to the components.”

Platinum has not been included in the above quotation. Still it is used, and, to be accurate in regard to fusing this metal in tin, I made three experiments; the results may be relied upon without fail, and would be of value to any one in fusing platinum in tin over the old method.

A piece of pure platinum was taken of 32 gauge and one inch wide. Strips were cut from the end about one-eighth of an inch wide. The pieces were then passed through the rolls until they were about four inches long, which was as thin as the mill would roll accurately. The strips were cut three inches long. Borax was placed in a small sand crucible which might hold one and a half ounces of tin. It was placed over a Bunsen burner, with the intention of fusing the borax. The heat was not sufficient to even form a glazing. The salts rolled up in a white puff, and was removed. The tin was melted and the platinum dipped in, being held at one end by tweezers. On removal of the portion immersed in the molten tin, the edges were jaggy and holes appeared in places upon the surface. Thus, by dipping, the metal was dissolved to the stub in twelve minutes.

The fact that the surface was not equally tinned was proof that flux was needed. Another crucible was used, with borax for the flux. The crucible was taken from the coals and carried to the laboratory; the platinum was dipped into the molten salts and tin, and quickly withdrawn. All that had entered the tin was missing; this was repeated, with the same results. The third dip

dissolved the platinum to the point held by the tweezers. The time required was less than a minute. Not being satisfied with the first experiment, it was repeated, the object being to find the time required to fuse platinum in tin at a heat barely sufficient for its fusion. The tin was melted over a Bunsen burner without being covered. The platinum strip was dipped into hydrochloric acid, and a drop or two of the acid let fall upon the tin surface, which at once freed it from oxygen. The strip was introduced and came out perfectly tinned. The thin bit of metal was pressed into the tin up to the pliers, being withdrawn occasionally. In just five minutes the platinum had been taken up by the tin. I have been particular in giving the time and conditions. Should the experiment be tried by some one using a thicker piece of metal, and not taking pains to free the platinum from oil or oxide that might be impacted by the rolls, or to remove the oxide of tin from the surface, as was the case with the first experiment, the record might be pronounced a failure. Fortunately such low heat is not required in making alloy. This fact is plainly demonstrated, that no more heat is required for making dental alloy than will liquefy borax for the flux; this includes platinum.

This closes the arguments relating to making alloy. I trust the reader will kindly receive some object-lessons in connection with the statement already made. The principle upon which tin fuses the high-melting metal is the same as that of mercury in the setting of amalgam. Mercury is a metal in fusion in ordinary temperatures; it corresponds to the tin in the heated crucible. It fuses the cuttings of alloy and adds another metal to the mass. Another illustration makes clear the effect of washing or not washing amalgam. In our first experiment the oxide of tin retarded the fusion or setting to twelve minutes. The washing by the acid lowered the time to five minutes. The conditions are analogous to mixing amalgam with or without washing.

SYSTEMIC REMEDIES IN DISEASES OF THE TEETH.¹

BY LEO GREENBAUM, M.D., D.D.S.

IN compliance with the very courteous invitation of your committee I wish to present a short survey of systemic remedies which may be used in the treatment of diseases associated with the teeth. In doing this it is not my intention to enter into a discussion of the legal status or ethical propriety of dentists prescribing drugs for internal medication, but simply to point out the applicability of such medicines as adjuncts to local treatment. I will further limit my subject by considering only the systemic treatment of severe pains which frequently accompany dental diseases and which do not readily yield to local treatment.

Among such conditions we find hypersensitive dentine. By hypersensitive dentine I mean a degree of sensitiveness in which the touch of an instrument produces a painful impression, and which interferes with the proper preparation of a cavity for the introduction of a filling; the use of a bur or excavator causing intense suffering to the patient. This condition is responsible, as we all know, for the wholesale neglect of the teeth on the part of the public. One experience is severe enough to strongly and permanently impress with dread of dental operations not only hysterical women but even strong men, and to cause them ever afterwards to neglect proper professional care of their teeth. Pathologists claim this hypersensitivity to be due to increased functional activity of the so-called fibrillæ in dentine denuded of its protecting covering and thus exposed to external stimulation and irritation.

But this increase in the local irritability is not sufficient to account for the horror manifested by some of our patients at the sight of dental instruments, and which causes them instinctively to grasp the hand of the operator or to jerk the head back so as to avoid instrumental contact. This effect must fairly be attributed to causes other than the local condition. Therefore local treatment, such as the use of sharp burs, dehydration of the affected part by means of warm air, the application of alkalies or local anodynes,

¹ Read before the Academy of Stomatology, Philadelphia, January 21, 1899.

or agents which destroy the dentinal protoplasm,—excellent in ordinary cases,—is not sufficient to control these extreme ones.

The introduction of cataphoresis has helped very much to overcome such difficulties; but experience teaches us that patients who have once undergone the sufferings attendant upon the excavation of a cavity under such circumstances of hypersensitivity are ever after rather difficult to manage before they can be induced to submit to the application of the electric current; and that in such cases it is not only better, but necessary, to produce some systemic effect by means of agents which either stimulate or diminish the perception of impressions in the nerve-centres.

Various remedies have been suggested for this purpose, such as the inhalation of general anæsthetics, chloroform and ether, in quantity sufficient to benumb sensibility; but there is decided objection to this mode of treatment on account of the disagreeable after-effects liable to result and the danger to life lurking in these drugs.

The various coal-tar derivatives and the bromides have also been used; but the best results have been obtained by the use of the old-fashioned drug *asafœtida*. *Asafœtida* has a decided stimulating effect upon the nervous system, and produces a kind of pleasant intoxication which removes fear and overcomes nervousness. I have had several cases in which a patient on first consulting me was so overwhelmed with fear that it was impossible to attempt an examination; when the use of an explorer was out of the question, and even the mouth-mirror was carefully examined before its introduction into the mouth was permitted. In such cases good results have followed the administration of two three-grain *asafœtida* pills, the first one hour and the other a half-hour before the time appointed for the operation. There is neither danger nor disagreeable after-effects from the use of this drug, and it supports the patient's system and causes more ready submission to the operation.

Diseases of the pulp, such as the formation of pulp-nodules, pulpitis, etc., are often associated with reflex pains in the face, side of the head, in the ear, etc., of intense character, entailing a great deal of suffering, and which requires for their cure pulp devitalization. When this can be accomplished promptly the cause of the pain is removed and the patient relieved. But many cases present obstacles to the action of the devitalizing agent, as in inflammatory

conditions of the pulp arsenic will not act promptly, while in cases of pulp-nodules entrance to the pulp-chamber must first be secured. Occasionally it may be desirable to attempt pulp preservation. The consequent delay of the final cure would not satisfy the sufferer unless the neuralgic attack, for the treatment of which he consulted the dentist, were relieved. In such cases good results may be obtained from the internal administration of the coal-tar derivatives, such as acetanilide, phenacetin, and others. Experience in the use of these agents has demonstrated the fact that their effects are modified by individual peculiarities more frequently than any other group of medicines. I found that some patients were benefited by acetanilide, whereas upon others it had no effect, but phenacetin acted favorably; and in a similar manner all other drugs belonging to this group. This led me to the use of a combination of several of these medicines in one prescription, from which I obtained more universal good results than when using them singly. It seems that when in combination the therapeutic properties are acting conjointly in perfect harmony, while the toxic properties are more or less neutralized by each other; and even smaller doses of these analgesics when in combination are more powerful and more certain to alleviate pain than any one of them individually, and, above all, being free from the unpleasant symptoms frequently following a similar dose of any one of them. I have used the following prescription in many cases:

R Acetanilide, gr. viii;
Phenacetin, gr. xv;
Caffeine citrate, gr. xv.
Misce et ft. pulv. no. viii.

Sig.—One to be taken every two hours.

Since writing the above I have read an article in one of the medical journals in which a physician recommends the use of these combinations for reasons similar to those I have named. His prescription seems excellent, and I intend to try it at the first opportunity which may present itself.

R Antipyrin,
Phenacetin,
Quinine sulphate,
Powdered ginger, aa ʒss;
Caffeine citrate, gr. xv.
Mix and divide into fifteen capsules.
Sig.—One every two hours.

Doubtless every practitioner has had some experience with high-grade pericementitis, in which the tooth continues to throb and hammer with inflammation increasing in spite of the aconite and iodine applied to the gum, and in spite of the persistent application of drug after drug to the affected part until the mouth is blistered, the throat sore, taste temporarily destroyed, the patient made generally and wofully miserable, and the dentist, in sheer desperation, has sent his patient home with the assurance that he has used all known remedies and done all in his power; or, worse, has been guilty of malpractice in extracting the offending tooth.

In such cases good result may be obtained if in addition to the local treatment the following internal sedative is prescribed:

R Potassii bromidi, ʒii ;
Aquæ, fʒii . M.

Sig.—A teaspoonful every two hours.

Frequently these peridental troubles, despite all treatment, will run to an abscess; or before the case reaches us it may have gone beyond the point when resolution could be established. The pain associated with the formation of pus and the final formation of a fistula is very intense, in many cases making the patient quite feverish and generally depressed. To allow the patient to bear the intense suffering and steady torture accompanying degeneration, causing him to pace the floor in agony until the case is relieved by the usual discharge, is akin to barbarism. For many years in such cases I have given the patient a capsicum bag with instruction how to apply it, so as to hasten the opening of a fistula, suggesting that it be applied before retiring and that the following be taken:

R Chloral hydratis, gr. xxv;
Potassii bromidi, ʒi .
Misce et ft. pulv. no. iii.

Sig.—One to be taken before retiring.

Though I have used this almost universally in such cases during the past ten years, I cannot recall a single instance when the patient failed to spend a comparatively comfortable night, and in the morning pus was discharging through a fistulous opening. Chloral is looked upon with disfavor by the medical profession on account of the depressing effect upon the heart which is attributed to it. But the manner in which I recommend my patients to take it—that is, before retiring—seems to obviate that danger. I can say with perfect assurance, in consequence of the experience I have had with

the above prescription, that there is no danger in the dose given when taken in the manner prescribed; and that I have obtained more satisfaction and my patients more comfort in cases where its employment is indicated than from any other drug.

A word about capsicum bags. I do not want the proper kind to be confounded with the so-called capsicum plasters which are now so universally sold by druggists for the cure of toothache. The first are made by filling with powdered capsicum a bag one side of which is made of rubber to protect the cheek, the other of muslin to permit the fluids of the mouth to enter, dissolve, and act on the tissues covering the root or roots of the teeth against which these bags are placed. The second kind are not very strong, and are really worthless for the purpose of counter-irritation.

Abstracts and Translations.

A CASE OF TRIPLE REIMPLANTATION.

BY DR. ARTHUR ZENTLER, PARIS, FRANCE.

THIS is as a contribution to the study of a question that has been treated so frequently and with authority that I believe it will be interesting to cite this simple case of reimplantation.

It deals with a child of fourteen years of age, of good constitution, who was presented for our advice on the 21st of October, 1897, after an accident that had determined the loss of three teeth in the lower jaw,—namely, the incisors, two left and one right.

The patient showed us the teeth, which he had in his pocket.

It was two days after the accident that we saw the case, and, an interesting circumstance to note, the work of granulation had already commenced.

After having taken an impression of the jaw, to study the conditions with which we would have to contend, the following wash was ordered:

Chlorate of potassium, 8 grains;

Fluid extract of hamamelis, 125 grains.

One spoonful in a half-glass of hot water, as a lotion, every two hours.

We recommended the patient to return the following day.

The usual advice had been given him with regard to diet, preparatory to the anaesthesia and the ether. We then proceeded to the preparation of the teeth; resection of the extreme apex; extraction of pulp and filling of the canals with the aid of gutta-percha. The filling was completed by a resisting bed of cohesive gold, the whole slightly polished. . . .

The antiseptic precautions were scrupulously observed for preserving the teeth in a solution of bichloride of mercury 1 to 1000 after a previous cleansing with a soft brush and soap.

The next day, before proceeding with the operation, we made a careful wash of the mouth with peroxide of hydrogen; the seat of operation was particularly the object of our attention.

Ether was administered, and during the sleep a trepan well sterilized was introduced in the sockets to lift up all the new-forming tissue. The trepan was succeeded by a round instrument designed to enlarge the sockets mentioned. The teeth were tried in their respective sockets, then removed, and the sockets filled with cotton dipped in a solution of bichloride 1 to 1000.

When the patient regained consciousness, the cotton was removed, the sockets washed with hot water, and finally with hydrogen dioxide, the teeth were put in place, joined, and tied with threads of silk.

The patient was discharged with a recommendation to wash the mouth every hour with oxygenated water and to eat nothing but liquid food.

In case of fever after operation we order him:

Antipyrin,	.65 centigram;
Tincture of aconite,	.52 centigram;
Sulphate of morphine,	.010 centigram;
Distilled water,	124. centigrams.
Every hour a spoonful.	

October 24.—The teeth were slightly movable, and the general state excellent.

October 26.—General state normal; the teeth appeared more movable.

November 6.—Teeth had become more firm; the state of health was good.

From that day we saw the patient once a week, and each day

changed the ligature. The consolidation of the teeth kept progressing.

January 15, 1898.—The teeth were notably consolidated and the impression taken.

February 15.—The consolidation of the teeth was perfect.

I am very happy to express my thanks to Dr. Otto E. Inglis, who was so willing to assist me in the execution of the operation.—*L'Odontologie*, Paris.

Reports of Society Meetings.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A REGULAR meeting of the Institute was held on Tuesday evening, February 7, 1899, at the office of Dr. Edwin S. Robinson, 28 West Thirty-ninth Street, the President, Dr. E. A. Bogue, in the chair.

The minutes of the previous meeting were read and approved.

Dr. J. Adams Bishop read extracts from the *Congressional Record* concerning the appointment of dentists to regular army service.

Dr. A. H. Brockway called attention to the publication, in an issue of the Brooklyn *Daily Eagle*, of the paper recently read before a medical society by Dr. Tuthill on "The Deleterious Effects of Mercury from Amalgam Fillings."

COMMUNICATIONS ON THEORY AND PRACTICE.

Dr. C. O. Kimball.—In line of Dr. Payne's communication last month I wish to report a case that has interested me very much. It is not often that a man cares to spread his mistakes before the profession, and yet that is what I am now about to do.

A man of about forty-nine years of age, in pretty good general health, had been for several weeks past under a severe strain of anxiety and overwork. During a long railroad journey he began to have pain of a neuralgic character in his left upper bicuspid, which had gradually but steadily increased for about four or five days. He called to see me to have relief from the pain, which was

becoming so severe as to interfere with his work. The pain extended over the side of the head and face, but concentrated itself especially in these teeth. I found both bicuspid^s had been filled with large gold stoppings, including the fissure in each tooth and covering most of the approximal surface. These had been patched with amalgam. Above these fillings each tooth was decayed, the first bicuspid decidedly, the second very slightly, and each of these cavities was somewhat sensitive. Believing at first that it was simply irritation of the dentine, I put in a little temporary gutta-percha and a slight wedge, expecting that filling the cavity would make it all right. Late that evening I received word that the pain in the teeth had increased to a very marked degree. Circumstances made it impossible for me to see him until eleven o'clock the next day. I found that the pain had increased to such an extent that he had already seen a physician, thinking possibly the trouble might arise from some other cause. His physician administered phenacetin and sent him again to me, believing the pain to arise from one of these teeth.

I found the condition of things unchanged except for the worse. The teeth were tested with hot water, which increased the pain decidedly, and with ice, which had little effect. The second bicuspid was slightly sensitive to percussion. The first not at all so. In fact, all the symptoms pointed to the second rather than to the first bicuspid, and although some were obscure, yet upon the whole it seemed to me that a clear case of pulpitis was made out, probably in the second bicuspid, though of this I was not absolutely sure. I drilled into the second bicuspid and found the pulp apparently normal; injected a little cocaine and removed the pulp at once, with but trifling pain.

The root was then thoroughly cleansed and sterilized with formaldehyde and bichloride and sealed up for the irritation of the work to subside. About three hours later I saw him again; the pain was as severe as ever and pointing just as clearly now to the first bicuspid, which, however, was not sensitive to percussion.

I explained matters fully to the patient, feeling not sure now that the tooth had anything to do with it, but after weighing the matter carefully it was decided best to devitalize the tooth. I found in this tooth a different state of things, the root being almost entirely filled with secondary dentine, so that it was not easy to trace the canal.

The pulp was removed, and this seemed to give some relief, but not as completely as we had expected.

The patient was seen the next morning. The pain in the teeth was distinctly better, but an eruption had broken out on that side of the head and face, while the corresponding half of the lips and tongue were all covered with small ulcerations.

I did not believe now that the trouble could come from the teeth alone. In the course of the day I talked over the case with his surgeon. He had seen the patient, but was still somewhat uncertain of the diagnosis, although it seemed impossible that so much disturbance to the trophic nerves could have come from reflex action. Later in the day, after consultation with another physician, it was pronounced to be an obscure case of shingles.

I have no apology to make for my action in devitalizing these two teeth. So far as I recall in my experience I have hardly ever opened a tooth of that kind and found it alive, though as a mere matter of chance anybody might make the mistake. The pain was so marked and so persistent, and simulated so exactly a slight pulpitis that had not gone far enough to extend outside of the foramen and involve the tissues beyond the tooth, that I was deceived. Though after I had opened the first one I was very doubtful about the second. I laid the matter fully before my patient, stating that I did not think there was anything wrong with that tooth, but I felt justified in opening it, because there was a bare possibility of gaining relief, and he had suffered intensely two or three days. From the time the eruption appeared the pain ceased almost entirely.

There were two other things in my mind. One was the antrum and the other was malignant disease; as we know, the presence of malignant disease in the deep tissues of the face sometimes produces intense neuralgic pain, but that, of course, I had no means of verifying until the eruption came out.

Dr. S. H. McNaughton.—Fifteen years ago I had herpes zoster, the eruption being in the left supraorbital and frontal region, corresponding to the distribution of the frontal branch of the first division of the fifth nerve.

For a day or two there had been an uneasy pricking sensation in the region referred to; this was followed by some swelling, pain, and eruption, and was immediately diagnosed as herpes.

The swelling increased, as did also the eruption and neuralgia.

The eye was swollen, closed, and very painful; the upper teeth on that side became tender to touch and felt elongated.

The pain simulated pericementitis rather than pulpitis, and very likely might have been mistaken for it had the teeth become tender to touch before the eruption appeared.

The President.—There is another condition which Dr. Kimball could not very well touch upon in this connection. I beg leave to draw your attention to it,—namely, the pain, in any one of the sinuses, frontal, ethmoidal, or antral, which often comes to people suffering from a cold, and which they cannot differentiate from pain in the teeth.

We will now have the pleasure of listening to Dr. Benjamin Lord, who has consented to tell us what materials he uses in combination for filling teeth.

Dr. Benjamin Lord.—Mr. President, I will present a few thoughts on the subject of the evening, "Combination Fillings," as in my experience there is very great interest and value in combining some of the materials that we use in the operation.

First, I will speak of combining gold- and tin-foils. I am accustomed to make this combination by folding the two foils in such a way that the tin will be equally distributed throughout the gold. To do this I fold a quarter of a sheet of soft gold over twice, which gives four layers or folds. I then place on the folded gold a strip of tin-foil of the same length as the gold but somewhat narrower, so that the proportion of tin shall be about one-sixth of the whole. I then fold the gold over the tin a sufficient number of times to have the strip the width required. For small cavities I would use a sixth of a sheet of gold and, consequently, less tin, and fold the two metals together in the same way. By this combination I contend that we get greater softness, toughness, more certainty in the welding, and, when properly packed and condensed with suitable instruments, greater solidity; and as a consequence, the margins are stronger. Such fillings will wear longer and preserve the teeth, or rather prevent further decay, with more certainty than those made all of gold. An amalgamation of the two metals takes place at some period after their introduction.

I consider this combination very suitable for the labial surfaces of the front teeth, though with a less proportion of tin, say about one-tenth, as the color is less conspicuous than gold. Too much cannot be said in favor of the combination of tin and gold, in

proper proportions, and I believe that a thorough trial will be convincing as to the correctness of my views on this subject.

There is another combination of metals that I have used with a good deal of interest and satisfaction, and, I trust, with increased usefulness, for some two years. This consists in adding gold to the amalgam alloy in sufficient amount to make the mass contain about twenty per cent. of gold.

I use the crystal gold strips number one, prepared by A. J. Watts; as it is very spongy, it readily takes up the mercury. I add the gold to the alloy and mercury, then grind them as if no gold was being used, and a perfect amalgamation is the result.

The question at once arises, What is gained by this combination? The color is very greatly improved; I have not observed any shrinkage, expansion, or crumbling of the margins; also there is less staining of the walls of the cavity; so I consider much is gained by the addition of the gold.

The President.—Our distinguished guest, Dr. C. W. Strang, of Bridgeport, Conn., will now instruct us regarding the use of his particular combination of amalgam and zinc phosphate.

Dr. C. W. Strang.—Mr. President and gentlemen, it affords me much pleasure to be with you this evening, to address you upon a subject in which I have been very much interested for a period extending over nearly ten years of my practice. I have had the privilege of presenting the matter to a number of associations and at a number of meetings, and I also take occasion to say that the idea of combining amalgam and oxyphosphate of zinc is not original with me. About ten years ago, in one of our dental journals,—I do not remember the journal nor the name of the writer,—I saw the suggestion of combining amalgam and oxyphosphate of zinc. No description was given as to the method. I was sceptical regarding the advantages to be obtained by this combination, but I began to experiment, and found that in proper proportions and properly manipulated I was able to make a preparation that was reasonably hard, a preparation that apparently did not shrink or contract in the least; that was not appreciably affected by the secretions of the oral cavity, and that was not affected materially by weak alkalies, though this mixture when thrown into an ammonia bottle entirely disintegrated in a few hours. I found that it made but very little difference what amalgam was used, or what oxyphosphate of zinc, so long as the latter

was of good quality. The use of different amalgams I found caused a variation in color of the mixture, also in the grain or homogeneity. In my experiments Lawrence's amalgam gave as hard a mixture as any. The standard amalgam manufactured by Axfeldt & Dubois, of Philadelphia, gives a reasonably hard preparation, but very dark. The amalgam of Fox & Gerhardt gives quite a light mixture. The Fellowship alloy gives us the whitest preparation of any amalgam that I have used. The method that I have adopted in the preparation of this combination for filling-material is about as follows: If I am to insert a filling in the anterior teeth I try to get a preparation of as light a color as possible. I select Fellowship alloy, add sufficient mercury to make it a little more plastic than I would were I to use amalgam alone. I wash it with alcohol and grind the mass in a mortar. For the quantity of filings that I have used in the amalgam I take from one-third to one-half of the whitest zinc oxide I can obtain, place upon the glass tablet about the quantity of the liquid that would be needed for the amount of oxide, possibly a very little more, then grind the oxide powder with the amalgam, in a mortar, thoroughly. With a very strong spatula I now mix the phosphoric acid with the mass above described, and get it into place as speedily as possible. The material is very sticky, and considerable force should be used in packing it into the cavity. Under no circumstances should it be used unless all moisture can be excluded. I will say that I frequently see operations that I made nine years ago with this material that are as perfect as though made less than nine days ago. I remember the first case in which I used this material. The patient was about sixteen years of age, a young lady. The second superior bicuspid had erupted within the arch, so that the first bicuspid, the second bicuspid, and the first molar made a triangle. The posterior part of the first bicuspids were very badly decayed, the decay extending above the margin of the gum. The second bicuspids were decayed both anteriorly and posteriorly. The first molars were badly decayed anteriorly. I extracted the second bicuspids, which left the cavities in the molars and remaining bicuspids free. I was in doubt as to whether the first bicuspids would tolerate any filling, because the cavities were so deep, but I took the risk of using this combination. It was not necessary for me to cut away the masticating surfaces of the bicuspids, though the cavities came dangerously near them. The decay was removed, the margins of the cavities

were perfectly finished, prepared as carefully as though I was preparing for gold fillings, and this combination was introduced. I had the pleasure of examining that work only a few weeks ago, and the teeth were as clear and the fillings as perfect at the margins as though they had been in but a few weeks. Possibly there is not quite the same contour as at the time the operation was performed. Now, I will say in regard to this filling that it never discolors tooth-structure. I believe it is the most perfect protection to tooth-structure of any preparation that we can introduce into the cavity. It adheres as closely to the cavity wall as the enamel adheres to the dentine. I use it in immature and poorly developed permanent teeth, and in patching gold fillings that are defective. I never find the teeth discolored as we find them discolored where we patch gold fillings with amalgam.

There is a class of cavities which for a great many years I have regarded with horror, but I do not now feel much disturbed when that class of cavities present. The cavities referred to are those located on the lingual surfaces of inferior molars. These are difficult cavities to manage, particularly when the patient is forty to forty-five years of age. It is exceedingly difficult to prepare these cavities so that amalgam, or any filling that does not closely adhere to the tooth-structure, will be retained. There is also another class of cavities that are rather troublesome,—those located on the buccal surfaces of second molars extending around posteriorly in which perhaps the whole buccal wall has softened and it becomes necessary to protect the whole surface of the tooth. I find that with this combination of amalgam and oxyphosphate of zinc these cavities are filled with more certainty of the teeth being preserved permanently than with any other preparation I have ever used. So far as the preparation of cavities for filling is concerned it does not make much difference whether we cut retaining grooves in the teeth or not, provided we can get a dam on and exclude moisture. If our material is properly manipulated we will be able to insert a filling that will be a perfect protection to the tooth.

In mixing the phosphoric acid with the mass I gradually draw the mixture together and keep adding the powder and amalgam until I get a mixture that is like a thick putty, which I then take between the thumb and finger. Everything must be ready to introduce the filling when it is mixed, and it should be placed into the cavity quickly, pressure being brought to bear upon it from

all sides. If it is a proximal cavity, I use a ribbon saw between the teeth, so that the pressure may be brought in all directions upon the filling, which seems to give a finer-grained material than can be obtained without the pressure. I may be regarded by some of you as quite enthusiastic over this preparation, but my enthusiasm is a healthful one, which has come to me by a number of years' observation of the results obtained from its use. I think that my patients have been benefited by my experience and my work along that line. I have far greater confidence in fillings of this kind, particularly in soft teeth, than I have in any material I have ever used. A seam will never be found at the margin of these fillings.

In five minutes after the filling has been introduced disks and burs may be used to dress it down, but it does not get hard enough to have much force brought upon the proximal surfaces in less than ten minutes. The Fellowship alloy sets rapidly in these fillings.

Dr. Gaylord, of New Haven, used amalgam filings in the oxyphosphate without mercury, but he discontinued it because the filling was rough. Some good operators add pure amalgam to the surface of these fillings, but I would prefer to make the whole filling of the combination of amalgam and oxyphosphate, because with them there would be no danger of checking at the margins. In mixing the amalgam I am careful not to get an excess of mercury, adding more filings instead of squeezing out the mercury.

The President.—We will now hear from Dr. C. B. Parker, who will kindly favor us with his method of combining alloy filings with oxyphosphate of zinc.

Dr. C. B. Parker.—The material to be used for the saving of children's teeth, as well as the bicuspid (particularly of the adult), in our daily practice was a source of some little anxiety to me when I commenced to practise here eighteen years ago. Dr. Jarvie, with whom I was associated, usually placed the children in my care. Our practice was to use tin wherever it was practicable, where that could not be used, the next best material that was adapted to the case was resorted to.

In those sensitive and shallow cavities that were impossible to properly excavate the cements were nicely adapted, but so liable to wash out in such a short time that I began to look for some remedy. I commenced by combining the cement with amalgam,

but it was never satisfactory. I found that after the alloy had been amalgamated the amalgam and cement could not be thoroughly mixed; the cement would be in one part of the filling, the amalgam in the other; so that was discarded. I next tried mixing alloy filings with the dry powder; the filling was then prepared in the same manner as ordinary cement.

I think it is particularly well adapted for children's teeth, especially on the grinding and buccal surfaces, for two reasons,—first, it is practically non-conductable; secondly, it will resist attrition in the average mouth from two to three times as long as the same cement without the combination of the alloy. I say practically non-conductable, for neither the cement nor the metal are continuous. It resists attrition, for it always presents a metallic surface. This is well illustrated in the specimens which I pass around. I wish to call your attention to the difference in the fillings where pressure was used in one and not in the other, as is the condition in all plastic fillings where not enough pressure is exerted until crystallization commences or is fairly under way.

In a case where I dare not use much force I partly fill the cavity as gently as possible, after allowing it to harden a minute or two, and then put in the remainder of the filling, keeping it under gentle pressure until it has hardened sufficiently. By so doing the atoms are held in such close contact that the lasting and beneficial qualities have been improved in the same ratio over a filling in which no pressure had been used.

Another class of teeth where we have considerable annoyance are the bicuspid teeth when they are so broken down that we are not justified in filling them with gold and the use of amalgam would produce so much discoloration as to be objectionable. In these cases we resort to cement or gutta-percha. In a few months the patient returns saying that the fillings are so worn down that he is very much annoyed by food always lodging there.

In nearly all such cases it will be safe to use this material, with the full knowledge that there will not be the slightest discoloration, any more than if the cement alone was used, especially if pressure on the filling has been continued until crystallization was well advanced, for the cement will always appear on the outer surface, and the filling will give better service than any cement I ever saw.

Within the past month I have seen two patients who had molars

and bicuspid filled with this material by two of our New York members at about the time that I read a short paper on this subject before the Odontological Society in October, 1889. The fillings are still in a good state of preservation. I very often see fillings that I put in from six to ten years ago.

The preparation of this filling-material can be easily done by any one. I find that with the average oxyphosphate powder equal parts of the alloy filings should be added. And right here let me say not to use a coarse-cut alloy; it must be a medium or medium to fine cut, as the coarse shaving class of filings will flake off from the surface.

Place the combined materials in a bottle, shake and rotate until they are thoroughly mixed, and then prepare in the usual way for filling by mixing with the phosphoric acid.

In selecting the oxyphosphate I use the light color. In fact, for fillings in the anterior teeth I use the white oxyphosphate, three parts, to alloy, two parts. The combination of the alloy with the oxyphosphate delays the crystallization a little, and I should always advise the application of a varnish, or any other suitable substance, to the surface of the filling to prevent contact with water.

Now, after fifteen years' experience with this material in the mouth of the young child, as well as the adult, I firmly believe that no mistake will be made in using this combination wherever cement would be used, with the full knowledge that in so doing the lasting qualities of the filling will be very much improved.

The President.—Perhaps Dr. Parker can tell us if he has tried using gold filings to make combination fillings.

Dr. Parker.—I have used the gold filings, but that makes a rough filling; when the cement dissolves it leaves a rough surface. I do not think there is any advantage in the gold.

Dr. Lord.—I simply wish to remark that I would prefer tin-foil in the grinding surfaces of children's teeth, either for the deciduous or permanent, and also for the proximal sides if the cavities are small. The trouble is that we do not have the children brought to us generally until the teeth are very much broken down. In such cases I fill cavities and spaces, for greater comfort, using gutta-percha at the cervical margins and covering this with oxyphosphate, as it wears longer.

When tin is used to preserve the teeth until they become fully

developed it is not necessary to keep the work dry. This is a great relief to children, and the more simply young persons' teeth can be treated the better, so long as we secure the end in view.

Dr. J. Morgan Howe.—I have been especially interested in the description of Dr. Strang's method of combining amalgam and zinc phosphate, which is new to me. I think it must be destined to be of great service to us. I have been in the habit of using the combination of alloy cuttings with the phosphate cement that Dr. Parker suggested and introduced some ten years ago ever since that time, and have found it to be a great improvement in wearing quality over the cement alone. I have been annoyed in some cases by the filling assuming a rough surface, and I think he has explained the reason. I have attributed it to the wasting of the cement, leaving the metal points prominent. I suppose that by using finer particles of metal the results would have been more satisfactory in that respect. Whether the combination of alloy filings with cement or amalgam with cement is going to prove the better will be for us to determine by experience. The combination of tin and gold I have recently used very little. My experience with it has not been entirely satisfactory, and I have not used it at all, I think, for three or four years. The other combination of gold with amalgam that Dr. Lord spoke of, I have not used at all in the way he suggests.

Dr. Louis Shaw.—I do not see the advantage of alloy filings over any other insoluble substance, such as powdered silica. If there is any advantage I would be glad to know of it.

Dr. Howe.—From my observation I should say that there is a decided difference between a mixture of alloy filings with phosphate cement and a similar mixture of such substances as broken-up teeth or filings of gold, on which the phosphoric acid would have no chemical action. One reason for the good results obtained by mixing particles of silver-tin alloy with cement is that the metallic pieces are held in the combination by chemical action on their surfaces.

Dr. McNaughton.—I have here an upper wisdom-tooth which I shall pass around. In it there are two fillings of gold and tin put in by one of our best operators. These fillings were in the mouth for about nine years. The filling in the distal surface must have been an exceedingly difficult one to put in, as it was almost an impossibility to see the cavity, which was close to or above the

gum margin, and there was very little if any undercut. This filling is much disintegrated and soft. The dentist who inserted it thought that moisture must have entered during the operation. The filling in the mesial surface is clean and bright, and in every way a perfect filling. It is in contact with a gold filling. These two fillings prove the saving qualities of the combination, and show how differently the same materials may act as regards disintegration.

Dr. Kimball.—I have received the following letter from Dr. H. W. Gillett, of Newport:

“NEWPORT, R. I., February 4, 1899.

“MY DEAR DOCTOR,—Apropos of Tuesday's discussion by the Institute, the following may possibly be of interest.

“In April, 1889, a case presented with defective amalgam fillings in right superior first molar and second bicuspid, corono-approximal.

“The teeth had been much cut away previously, and the flat fillings had allowed them to approach each other, closing the space.

“They were wedged apart first.

“When prepared, the molar cavity was large and extended above the gum, while the bicuspid cavity was one of those distressing saucer-shaped cavities reaching far above the gum, with which we are all familiar as the sequence of so-called permanent separation of bicuspids.

“These were filled by what many of us know as the Clapp method,—matrix; amalgam (probably Eckfelt & DuBois standard) for first third or half of cavity; a crystal gold packed into this at once till mercury failed to show any more, and finished with foil.

“Dr. A. R. Eaton, of Elizabeth, N. J., in whose care the patient now is, told me last month that those two fillings are still in good condition.

“These are among the first that I did in that way of which I know the subsequent history.

“The cavity was prepared with undercuts as for amalgam or gold, and the fillings were retained without any assistance from cement, as has been later recommended by Dr. Clapp.

“I continue to use the method with satisfaction in selected cases.

“Yours very truly,

“HENRY W. GILLETT.”

Dr. J. Bond Littig.—Dr. Parker in his paper has fully described my experience with this combination filling. I have used it ever since, and, in fact, previous to, the time Dr. Parker read his paper before the Odontological Society, having heard through others that he was using such a filling.

I find it one of the most valuable materials for the temporary teeth, and occasionally use it for the permanent ones. I have had

the pleasure of seeing some of these fillings put in, I think, by Dr. Parker some eight years ago on the grinding surfaces of lower molar teeth of an adult, and they were in as perfect condition as the day they were inserted.

In using this filling for adults I find that it wears more rapidly in some mouths than in others, resembling in some respects the oxyphosphate, but superior to it as a filling for temporary teeth. There is a chemical affinity between the phosphoric acid and the metal, therefore I generally mix them together and then stir in the powder until I get the proper consistency.

The reason this filling gets rough is because the filings used are too coarse. If a filling should become rough, a burnisher rubbed over it a very few times will restore the surface.

The President.—Dr. Watkins, have you had any experience in combination fillings?

Dr. S. C. G. Watkins.—I have heard so many interesting and new things this evening that I feel at a loss for anything to say myself. Dr. Lord's method of mixing tin and gold I was very much interested in. I have used them separately, partly filling the cavity with tin and then adding the gold, but I will try Dr. Lord's method, as I believe it to be a good one. In regard to using amalgam according to the methods described here to-night, I have had very little experience, and that was not satisfactory. From what I heard this evening I presume it is my own fault that I have not had better results. I shall also experiment in this line. The method which I have been using in combination fillings to quite an extent in large cavities and fragile teeth, has been to first partly fill the cavity with soft oxyphosphate, and then press gold or amalgam directly into it, waiting for the cement to set; the edges would then be cleaned and made free from cement, and the gold or amalgam built up until the filling was completed. I presume that is known as Dr. Clapp's method. I do not know whether that is really Dr. Clapp's original idea or not, because it has been used a great many years. I know I used the oxyphosphate and gold about eighteen years ago, and I have one particular filling put in in that way, in 1883, which I am very proud of. I use that method at the present time, and I feel well satisfied with it. The mixing of amalgam and gold, by partly filling a cavity with amalgam and then adding gold to that, I used for some years, but abandoned the

method several years since. I shall certainly try the three methods which have been suggested.

Dr. F. Milton Smith.—It has given me great pleasure to hear Dr. Strang to-night. Some one has said, "Their works do follow them." In his case his work has preceded him, for it has been my good fortune to have seen some of his work in gold fillings which is certainly a credit to him.

On former occasions I have been a little suspicious when I have heard plastic fillings of various kinds highly commended, and have been uncharitable enough to suspect that the one endorsing them could not make good gold fillings.

Unless I am mistaken I have lately read in one of our journals an article by Dr. Strang, to which I gave only slight heed, because of not being impressed with the name of the writer. It did not occur to me that he was the same whose superior gold fillings I had seen.

Since recognizing Dr. Strang and hearing from him of his success, I am strongly impressed with the value of his combination. Since he has done the experimenting for ten years past, it seems only necessary for me to learn from him just how he mixes his filling in order to adopt the method, which I am satisfied is a good one. I feel very grateful to him for bringing it forward.

I have no question of the utility of the combinations suggested by the other gentlemen, and am sure I shall find a place for them in my practice.

It would seem to me that our Executive Committee is entitled to especial commendation for this very practical meeting.

Dr. S. E. Davenport.—I feel that a little more emphasis should be given to what Dr. Lord has said concerning the use of gold and tin, for the combination has seemed to me for years to be a most valuable one, especially in the crowns of the temporary teeth, and also in the crowns, buccal surfaces, and small proximal cavities of permanent teeth. When Dr. Lord referred to the change which comes to tin and gold fillings in nearly all mouths a little while after they are made, he called it amalgamation. I am at a loss to know what it ought to be called, but think that term misleading, as it implies the presence of mercury when used to define chemical change in metals.

Professor Miller, of Berlin, who used tin and gold freely and successfully years ago, told me once that he did not know what

that change was. The fillings get very hard and the two metals appear, on the surface at least, to have more than a mechanical union.

Dr. Strang, with whom I used to play fifteen or twenty years ago in the old Connecticut Valley Dental Society, certainly knows how to make gold fillings, and his attention to this plastic combination was given before he arrived at an age when it becomes necessary for some of us to make things easy. His interest in this material came from his earnest desire to preserve the class of teeth which otherwise would certainly be sacrificed if gold alone were to be depended upon. I think Dr. Strang placed too little emphasis upon one of the greatest advantages possessed by this combination which he has done so much to develop for the profession. He did say it was not necessary to make deep undercuts, to be sure, but he did not emphasize sufficiently, to my mind, the fact that this combination can be used in saucer-shaped cavities almost without undercuts, depending upon the adherence of the material to the walls of the cavity, which must, of course, be absolutely dry. If the hour were not so late, I should be glad to report one or two cases from practice in illustration of this, but I think all who experiment with it will find that what I have said upon this point is true.

Because of the ability shown by Dr. Parker in putting together the little paper he has favored us with to-night, he will, I am sure, often be called upon by the Executive Committee. His combination of materials has done much to preserve the teeth of children, and many adult teeth of frail character which are perhaps better preserved by this combination than any other. I feel under obligation to all three gentlemen for their instruction this evening.

Dr. Strang.—I want to express my appreciation of the many compliments that have been paid me this evening, and should feel sorry to have any go away being deceived in any matter, and I am glad that my friend Davenport has undeceived all in regard to my age. I want to say that, in using the combination of amalgam and oxyphosphate of zinc, we cannot afford to be slovenly in any respect. Prepare the cavities as thoroughly as though for gold fillings, except that it is not necessary to make undercuts, retaining pits, or as much of a groove as would be necessary for a gold filling. Make the cavity absolutely dry before the filling is introduced, and be sure that not even an instant is lost, after the mass

is of the proper consistency, in getting it into the cavity under pressure. I think the results then will not be disappointing. I thank you, gentlemen.

Dr. Kimball.—I move a vote of thanks to Dr. Strang for his most interesting and able paper.

Carried.

Adjourned.

FRED. L. BOGUE, M.D., D.D.S.,
Editor The New York Institute of Stomatology.

ACADEMY OF STOMATOLOGY.

THE regular monthly meeting of the Academy of Stomatology was held at the rooms of the Academy, 1728 Chestnut Street, on the evening of January 24, 1899, Professor S. H. Guilford, president *pro tem*.

A paper entitled "Systemic Remedies in Diseases of the Teeth" was read by Professor Leo Greenbaum.

(For Professor Greenbaum's paper, see page 289.)

DISCUSSION.

Dr. Truman.—I think it is altogether wrong that dentists, as a rule, do not prescribe internally. I can commend the use of asa-fœtida. The other remedies and the methods advised in their administration are very satisfactory, especially in case of chloral. I can see no objection to its use after the manner recommended. We do have, unquestionably, a great many cases of acute pericementitis and apical abscess. When patients are suffering, something more has to be done than mere counter-irritation, and we must use internal agents. The coal-tar derivatives and bromides are also very beneficial in many cases.

Dentists generally have an idea that they have no right to prescribe. It is time such an idea be given up. They have as much right to prescribe for dental conditions as the medical man has, and should exercise that right and write prescriptions. I find it hard to convince my students that it is their duty to have prescriptions properly filled and administered. We have adhered too long to the idea of local irritation. We need the benefits of internal as well as external medication.

I indorse the essayist's opposition to capsicum plasters as counter-irritants, having discarded them long ago. There are agents better for this purpose than capsicum. He does not mention turpentine, and its derivative terabine, which is one of the best, always at hand, easily applied, and better than capsicum. A piece of sterilized cottonoid saturated with it may be applied to the gum.

Dr. Register.—I use turpentine as a local remedy in combination with iodine or aconite quite extensively. It is very peculiar in its influence, being a resolvent in some cases, and in others it acts in an opposite manner, aiding the process of suppuration. I write a prescription to be filled by the druggist and applied by the patient with a camel's-hair brush. As our essayist and Dr. Truman have said, we as dentists ought to cease to be looked upon as simply mechanics. We can do very much more for our patients by the utilization of internal medication, together with our antiseptics, in the treatment of teeth, the relief of pain, or the anticipation of cures, than by any mechanical treatment. The techniques taught by the colleges are overrated. I think students should be thoroughly grounded in the fundamental principles that govern practice, and the techniques will come to them just as they come to surgeons or specialists who pick them up in after-life. Unless one has that knowledge that comes from the comprehension of fundamental principles, he can never adapt himself to the changes in dental technique. That which he does take up he must largely unlearn.

We ought to feel ourselves specialists in medicine. In my own practice whenever I have a patient with an abscess I do not hesitate to use the hypodermic syringe and morphine sulphate to the extent of thoroughly placing the patient under its influence so that he is relieved. If the patient cannot be relieved in that way, then, of course, we have the radical cure of extraction, but I do not think that people should be allowed to endure torture day after day until nature brings relief. On one occasion for relief of pulpitis caused by pulp-nodules I had to administer hypodermically, in divided doses, three-eighths of a grain of morphine sulphate to produce relief. When my patients dread the thought of dental ministrations I treat them by internal medication, such as small doses of aconite, to prepare them for operations by lessening the nervous irritability. For cleansing teeth I use a germicidal agent that is made of iodoform, salol dissolved in chloroform, and alcohol, to

which is added a small quantity of oil of cinnamon or oil of cloves. I apply this with a camel's-hair brush or bibulous paper to the dry teeth, with or without rubber dam, allow it to remain for a minute or two, and follow with a mixture of iodine and chloroform, equal parts, and allow that to dry. The effect is simply marvellous. I never knew what it was to have my patients have clean teeth until I used this preparation. Since Williams has shown us how bacteria really act, we do get the teeth clean by taking off the zoöglæa of bacteria.

Dr. Hickman.—I cannot see how a capsicum plaster applied to the gum would draw pus from the root of a tooth. I should think that a poultice would do the work better. It seems to me that we always apply a counter-irritant to prevent pus formation and a poultice to cause pointing of an abscess. I would like to be informed.

Dr. Curry.—I wish to inquire regarding the medico-legal aspect of prescribing remedies. The essayist did not speak of that. Suppose a dentist prescribed, for example, chloral, and, owing to a weak heart action, the patient dies. There being no physician in attendance, and the prescription plainly showing what the patient took as the last remedy, would the coroner's inquest exonerate the dentist, or would the dentist have to prove his right to prescribe? Where would the responsibility rest?

Dr. Guilford (replying to *Dr. Hickman*).—A counter-irritant is applied to relieve the congestion about the root apex. A roasted fig or raisin formerly was applied as a poultice to cause pointing.

(Replying to *Dr. Curry*.) The court has held that a dentist has a perfect right to use an anæsthetic, and in case of accident he would be no more responsible for it than would a medical man. A man should have average intelligence and education in the matter, possess average skill, and use average care. I think the law requires nothing more than that. I do not know that the question, as asked, has been regularly tested in court, but it has been put in almost the same way, and I think that the courts have decided that a dentist has as much right to prescribe a medicine to relieve diseases of the teeth as a physician has to treat the general system.

Dr. Truman.—You are right, Mr. Chairman. In *Rehfuss's "Jurisprudence"* he will find that the law simply demands ordinary skill, and that if he has the proper authority to perform any opera-

tion the law will stand by him, just as it will by the medical man, and both the physician and the dentist are liable to suit for malpractice. The diploma does not save either of them.

According to my idea a counter-irritant acts thus: All irritants act on the sensory nerves and thus increase the flow of blood to a particular part. If applied to the gum-tissue, it excites these nerves, producing congestion of the blood-vessels upon the surface and a lessening of the blood-supply at the focus of inflammation. Pus seeks an exit through the least resistant tissue, this being accomplished by increased emigration of leucocytes and breaking down of tissue, producing tension and resorption. This is, possibly, intensified by some quality in the constituent of the pus not recognized; otherwise it is difficult to understand the tortuous canals (*fistulæ*) common in the oral cavity.

Dr. Jeffries.—For the most part I prefer local treatment, and have used cataphoresis repeatedly on hypersensitive dentine and in the extraction of pulps without previous treatment. I had a great deal of satisfaction in a case of removal of pulp-nodules from a tooth. For hypersensitive dentine I do not know any better local treatment than the old-fashioned carbonate of potassium in glycerin (saturated solution). I have used that remedy both with and without the rubber dam with as much comfort as could possibly be obtained with any other remedy. It is applied on a small pellet of cotton. In some cases I seal a small portion in a cavity, renewing it every day or two. It is effective even when dentine is so excessively sensitive that the touch of an explorer causes excruciating agony. This is not new, but it is effective. There used to be a fear that this remedy would affect the pulp, but I have never known of such a case. I did have, several years ago, a case of death of the pulp from the use of the cataphoric current, but in that case the tooth contained a large gold filling and the pulp received the force of the current too strongly.

Dr. Schamberg.—I wish to express my sentiments in regard to constitutional remedies in the treatment of the teeth and adjacent parts. There are undoubtedly cases where a patient, while suffering from a dental disease, may be afflicted with nervous excitability to such an extent that local remedies do not have the desired effect. Very often bromides have been serviceable in allaying this general condition. I am quite fond of the use of aconite. I find that the nervous excitability causes an acceleration of the heart-

action and there is increased inflammation of an irritated part. By using aconite as a sedative in one- or two-drop doses every four to six hours, one very often gives decided relief. I might enumerate many ways in which the local condition may be ameliorated by constitutional treatment. It requires careful attention. As to whether the dentist would be justified in prescribing medicines constitutionally, it depends upon the knowledge the dentist has of the use of the drugs. A physician I know is accustomed to prescribe a compound cathartic pill for toothache. I do not see how that could affect the teeth. Had he used some other constitutional remedy, he might have brought about the desired result. We must know what remedies are to be used and know how to use them; we will then certainly be justified in using them.

Dr. Gaskill.—I think that the treatment practised by a good many eminent practitioners is that which I was taught by Professor Litch,—i.e., the use of morphine with a cathartic. I have had results from that treatment which I could not have secured without a cathartic. I think it is the treatment that is prescribed by many practitioners for abortion of an incipient abscess.

Dr. Schamberg.—I do not state that cathartics will have no effect on local conditions. I do deprecate, however, the use of cathartics without reference to the nature of the dental condition, whether exposed pulp or apical abscess. The physician referred to was satisfied that giving a cathartic would bring relief in dental diseases generally. The same reasoning applies to purely local treatment. We do not take sufficiently into consideration the primary cause of the dental disease.

Dr. Luckie.—Our treatment is principally local, but there are cases where we cannot give relief by local remedies or by mechanical means. These are the cases in which systemic treatment is necessary. We all acknowledge that it is our right and privilege to prescribe it, and I believe that the medical profession grants that we have such right. Should the dentist, however, be so unfortunate as to have a death occur after he has prescribed a systemic remedy, who would give the certificate of death? Can the dentist do it?

Dr. Truman.—The coroner in case of accidental death, whether at the hands of a dentist or a physician.

Dr. Roberts.—When my patients unexpectedly require a counter-irritant I instruct them to mix a little ginger, red pepper, and

mustard and sprinkle a little of this on the fleshy part of a raisin, and then to roast the raisin. This is an easy method of making a capital capsicum plaster in case of emergency. It acts like a charm generally,—sometimes it will not,—but it is more effective than the roasted raisin by itself.

Dr. Greenbaum.—I have to express my thanks for the manner in which the paper has been received. In writing it I thought it would be an effrontery to introduce the theories of others. I therefore presented to you my own experiences and results obtained. I recall a number of other points, however, which I did not incorporate in my paper, but these have been thoroughly ventilated by Drs. Guilford and Truman. When we apply anything that is heating to a part, for a short time, it has a stimulating effect; if continued long enough, it results in absolute depression of the part and relaxation, and to produce this pepper-bags are used. We apply the term counter-irritation because we have no better. It draws blood to the part, but after being allowed to remain a long time causes relaxation. We use capsicum because it has a more stimulating effect than the poultice; the heated fig or raisin acts in the same manner, and the relaxation simply enables the pus to work its way through the tissues.

When I have a case of swelling resulting from the formation of abscess, I have no better treatment than the saline cathartic. I have never used a compound cathartic pill. It may be effective by producing general depression, but the saline is the only remedy I know of for reducing a swelling after an abscess has opened.

As to the medico-legal question, the thing has never been tested in a court of law, but most legal authorities claim that the dentist has a right to use anything or any treatment that will aid in relieving a dental condition, and the opinion has been expressed by many learned men that a dentist who has used a remedy in accordance with accepted theories would be exonerated before a court of law in case of accident.

OTTO E. INGLIS,
Editor Academy of Stomatology.

ALUMNI ASSOCIATION, BOSTON DENTAL COLLEGE.

A MEETING of the Alumni Association of the Boston Dental College was held February 8, 1899. At the conclusion of the routine business the President called upon the essayist of the evening, Dr. E. C. Kirk, of Philadelphia, to read his paper on "The Predisposing Factor in Dental Disorders."

(For Dr. Kirk's paper, see page 277.)

DISCUSSION.

Dr. H. H. Piper.—So far as I am concerned, I think that I would have preferred it if the lights had been kept down, and I could have gone from this room to my home and meditated on the lecture that we have heard. It is a very great pleasure to have the subject presented so ably.

Although we are restricted in our observations, as dentists, to one part of the human body, it is evident that we are apt to scatter in what we have to say regarding our professional work.

It is a great grief to me that I have not more time to give to that broad foundation in dental education which I think every dentist ought to possess,—namely, a knowledge of medicine and of the body as a whole; so that in an examination of the mouth one might the more intelligently pass judgment on what he sees. I almost envy those dentists who, fifty years ago, attended the Harvard Medical School and then went into a dental office and elected to practise dentistry. We all feel that it would be a great advantage to us if we could only have some of that broader knowledge. But it is too late for most of us. It can only be obtained by years of patient study, but it is a satisfaction to think that the students of the future will have this foundation, and will be able to carry on investigations better than we. It will be impossible for me, therefore, to follow, in a suitable way, the points of this lecture; but there have been some responsive chords struck, and one of them is that we want to know more of the relation between dentistry and medicine: the dentist should know more of medicine, and the physician more of dentistry, and there should be more reciprocal action.

The lecturer touched on the matter of nutrition, which I believe will be one of the important questions in the future. We,

as dentists, pay very little attention to the human body outside of the mouth; we keep pretty closely to our field of operation, and our thought is largely taken up with the best thing to be done under the circumstances, preventing the progress of disease, in keeping the mouth as healthy as possible; but the whole realm of the body, outside of the mouth, the circulation of the blood, the question of nutrition, and so forth, we are apt to ignore. Surely, as Americans, this question appeals to us more and more every year, and it becomes more and more apparent that the conditions of American life are responsible for the condition of American teeth. More or less, as dentists, we have observed that the mouth is connected with the whole body and subjected to the conditions that govern the whole body. I do not forget the fact that the enamel of the teeth is practically outside the realm of nutrition; but, otherwise than that, nutrition affects profoundly all the portions of the mouth, and we cannot, if we do our full duty, neglect those marvellously interesting problems which arise in this connection. Our high-school children are sent to school half-past eight o'clock in the morning, and they are obliged to take the first meal of the day before that time; they are supposed to take no other meal until two o'clock in the afternoon. How the child is fed in the interim is not determined by the parent, but by the child as he sees fit. Is it a wonder that the digestion of the child becomes impaired? Every one of us has been called on to attend children who have suffered from these conditions of American life.

To illustrate how closely related the solid structure of the teeth is to the matter of nutrition, I might say that I have had young patients come with teeth in perfect condition, and I have known them to remain in that condition during their first or second year in the high school, when suddenly a dozen cavities would appear, clearly connected with impaired digestion. This will, at least, illustrate forcibly the influence of malnutrition in some instances. There are, apparently, striking exceptions, as in the case of those persons who have the strongest, densest, and healthiest teeth in spite of disease and invalidism, just as there are persons in perfect health whose teeth are in the worst condition.

I was interested in the way that the lecturer held to the point that phagedenic pericementitis is a symptom of a disease rather than a disease.

You are aware, of course, that we know nothing of dentistry

beyond a hundred years ago, and that all the conditions which governed the teeth of our ancestors are, more or less, wrapped in obscurity; but now and then there is a little light let in on the subject. Caries is not found to any great extent in teeth of skulls which are known to be very old; in the teeth of those peoples which did not eat cooked starches. Three hundred years ago, under Queen Elizabeth, when these were freely used, caries was increasing. We know pretty well what the conditions of life at that time were: the men were wine drinkers; that has something to do with the gout. So we are brought in touch with the paper of the evening. There is one other interesting fact in connection with the English people, and that is that they were not subject to the nervous disorders to which we are to-day, they did not suffer from dyspepsia, and their teeth, though not perfect, were less carious than ours. I believe that it is with us a good deal a question of digestion, of nutrition. It seems to me rather interesting that in the works of the Elizabethan dramatists, we find less evidence of caries than of phagedenic pericementitis.

I must beg your pardon for taking up so much of your time.

Dr. D. M. Clapp.—It seems to me that it is a very great thing that the dentists of Boston could have presented to them for the first time the paper and illustrations that we have seen to-night. In all my attempts to benefit my patients I never feel quite so helpless as when a case of this kind presents itself. I palliate the trouble, and sometimes the patient gets over it; whether I have anything to do with the recovery I cannot say. But, certainly, while I have little to say on the subject, I can say this, that I fully appreciate the endeavors of others to bring light upon it. It is only by great application, long study, experiment, and observation that we shall ever become able to cope with this pathological condition. Consequently, I bow to men who put themselves into harness and work that the public may be benefited by it, and I wish personally to give my thanks to those men who are doing so much for the profession and, through the profession, for the people at large.

Dr. R. R. Andrews.—The loop-like formations shown on the screen to-night are more or less familiar to all who have studied the microscopical structure of the pericementum. I have heretofore regarded them as capillary loops, filled with blood-corpuscles. Those shown by the highest powers—about twelve hundred di-

ameters—look very like blood-corpuscles filling the capillaries; still I have a great deal of faith in what Dr. Black may say. I shall investigate these appearances with a new interest. It is only within a few years that we have been able to demonstrate the appearance of tissues in this way. The slides are beautiful and show the tissue perfectly. I have very little to add to what has already been said. I have not thought there were glandular formations in the pericementum of the human tooth; I have often noticed these appearances but have never given them any attention, thinking them merely capillary loops. In the treatment of the cases spoken of by the essayist I have had my failures and my successes, and I have no doubt that a gouty diathesis has a good deal to do with the trouble. I have been much interested in the way some of the tartar formations found on the roots of some teeth are formed. I have a fine specimen that shows three nodular formations which are located near the apex of the root that look as if they had been formed by a vessel of the pericementum, which had gradually given out lime-salts, and these, blending with the organic fluids, had gradually formed these nodular bodies. Whether this is so I cannot positively say. Professor Kirk, in his paper, has taken a different course from what I was led to expect by the printed card. I supposed we were to hear something of the vital principle of the organic structure of the tooth itself. Observation has taught me that there is a vital power within this organic structure that will, in the healthy patient, resist in a measure the inroads of organisms which produce decay. In very many cases the germs of caries enter the tooth-structure in a minute pit or fissure, and follow the canals of the dentine until they find resistance by a vital principle from the pulp. They then spread in the direction of the weakest part, the approximal surfaces. Many a tiny pit in the enamel entered by the drill finds a large cavity just within and perhaps exposing an approximal surface of decay, yet having a considerable amount of normal dentine between the infected portion and the pulp.

In our colleges students that are overworked lose their health, teeth are found to be decaying rapidly, and they are sent away for a brief rest and a change of scene. This is usually all that is needed to bring back the normal condition. On the subject of the paper as presented, I can only express to the essayist the pleasure I have had in hearing it. In the future I may be able to say something

more about the appearances which Dr. Black calls pericemental glands, and which I have always supposed were the loopings of the blood-vessels in this tissue.

Dr. E. H. Smith.—I thought that I had so arranged with Professor Andrews that I would not be called upon to-night. I will frankly say, gentlemen, that I cannot give any light on the subject that Professor Kirk has so ably presented. It has certainly been a very great pleasure to me to be present this evening, and I feel under obligation for so vivid a presentation of a subject that is always interesting.

Dr. B. H. Strout.—It is some years ago, I do not know just how many, since the first paper was published connecting the uric acid diathesis with pyorrhea alveolaris. Since that time I have tried to find some connection between the disease and certain conditions (such as gout, rheumatism, etc.) in practical experience, and so far (perhaps I do not know what phagedenic pericementitis is) have absolutely failed to find any relationship with any particular diathesis. There has been, in many cases, so marked a disparity that I have not been able to connect the two conditions. I do not like to seem in opposition to so high an authority, but I cannot make it clear to myself that these two things are cause and effect. A great many of the patients whom I see afflicted in this way are robust and healthy people; you inquire about rheumatic troubles and they never heard of them; some have, but the majority have not. I have in mind a particular patient of mine, a man who is a school-teacher; he takes a great deal of exercise, he is healthy in every way, except that he is laid up every winter with rheumatism. His teeth are the best I have ever seen for a man of his age, with never any trouble from disease of the peridental membrane. Another is a physician of large practice; his teeth are also perfect in number and position, but it is a constant struggle from year to year to keep those teeth from loosening. He suffers also from marked erosion. He is a man who knows what the uric acid diathesis is, but we cannot find any connection between the two in this case.

Dr. I. J. Wetherby.—Mr. President, I think that the subject has been so much exhausted by the essayist of the evening that there is nothing for me to say. As to trouble growing out of uric acid in connection with the teeth, I believe that it is absolutely true, and I have long been persuaded that Professor Peirce's view

was the correct one. I made the matter one of considerable study in the past, and I am firm in my views. There is one question that I wish to ask Professor Kirk concerning the peridental membrane, and that is, whether there are two membranes or one. That is, when you extract a tooth, do you leave the socket covered with a membrane, and is the root itself covered by a membrane?

Professor Kirk.—It may or it may not be. It is a membrane with a double function.

Dr. Wetherby.—That is what I believed. It has been denied by some, but if we examine the socket we find the walls covered by a membrane.

Dr. Woodward.—What regimen should be adopted to bring a patient back to normal health?

Dr. Kirk.—It simply means carefully studying all the conditions and adopting such measures as will tend to bring about a return of health. You will generally find that these people are bad eaters; that they have picked out a diet according to their palates. It means correction of the errors of living, correcting the habit of "bolting" food or the habit of eating too rapidly or too much. We often find that these people drink very little water. I ask a patient, "What did you have for breakfast this morning? for dinner? for lunch? Do you take much tea? coffee?" Another thing is the quantity of food. Up to a certain age the appetite of a child is very large, he is then building up the tissues, and the appetite is greatly in excess of what would be normal in the adult, and the faulty habit of eating in excess is sometimes formed. I say to the patient, "You would not fill up the stove with coal and close up the draughts; the fire would go out. Proportion the fuel and draught so as to obtain the largest amount of energy and be sure to get your fire well raked, and not let it fill up with ashes." That is the general idea.

Dr. S. G. Stevens.—Is there any relation between the pulp and this pericementitis? We have in our city an eminent dentist, who is also an M.D., who claims that there is a very vital connection between the pulp of the tooth and the disease, and who goes so far as to advocate the removal of the pulp of every tooth that has the disease.

Dr. Kirk.—I think there is no question whatever as to the intimate relation of the pulp to the peridental membrane, and when we consider that the tissues are all nourished by the blood-stream

it is easy to understand that when the blood carries an irritant substance with it the effect may be so slight as to stimulate the building up of tissue resulting in hypercementosis, or it may induce a condition of hyperactivity of the pulp-tissues and produce pulp-nodules, for instance. There is a connection between the two, but I do not understand just why the destruction of the pulp would have any effect in curing the peridental membrane. I do not think that it would. It has been advocated by several, but I cannot conceive of any good scientific reason for the operation, except that the pulp may become a source of irritation itself; in that case it should be removed.

Dr. L. W. Fowler.—A gentleman came to me to have a tooth filled. I found that the pulp of the tooth was devitalized. I treated it. I also found that every other tooth was badly affected with pericementitis and loose to a high degree, with the exception of this tooth of which the pulp was dead. I would like to know, if the pulp had been dead for some time, with a filling over it, why it remained firm while the other teeth with live pulps were loosened?

Dr. W. I. Brigham.—Did the doctor ever notice that teeth that were subject to this disease were not subject to decay? In regard to nutrition, I have a little patient who is thirteen years old, a pupil in the high school, for whom I think I must have filled at least ten cavities within the last few days. It is a question whether that girl is not going beyond her strength. I think that the teeth show want of nutrition quicker than any other part of the body. I know a man for whom I filled some teeth several years ago, and within a year nearly every tooth he had was decayed. I did nothing for him, as he left town. Lack of nutrition, I think, was the cause.

Dr. Kirk.—There seems to be an idea that malnutrition will bring about the condition that will produce caries. But in a lowered vitality the enamel is not included, because we admit that it is not vital in the ordinary sense of that term. It must be what Dr. Black has contended for, and what Dr. Andrews believes to be true; it must be something in the environment of the enamel, in the fluids, or in the tissues of the mouth that is affected by these alterations in vital conditions, so that the mouth becomes a more suitable habitat for the germs of caries or for their production.

From what has been said as bearing upon the paper, I fear that in one or two points I may have misrepresented myself. I tell my

students that pyorrhœa alveolaris is not a disease. I did not say that phagedenic pericementitis is not a disease. Pyorrhœa alveolaris is a flowing of pus from the alveolus; that is not a disease, but the symptom of a disease.

With regard to this question of education, which has been so pointedly stated by Dean Smith and has been alluded to by Dr. Clapp, I will say, for the encouragement of Dr. Piper, that he need not worry himself any longer with regard to his ignorance on these matters by comparison with the medical profession. The only circumstance that drove me to this study was that I could find no physician who knew anything about it. I went from one physician to another, and at last I have gotten a few interested in the subject, and I turn over these cases to them.

What is gout? You will find a great many varieties of gout. I look upon it as a condition of malnutrition, and in that sense a cause of diminished vitality. When we depress vitality low enough we have death, or, if you please, necrosis, which is another name for death. We may lower vital resistance to a point where we bring about disease, where we become the prey of bacteria. I said that I admit bacterial factor, but there is something preceding that and it is this destruction of our sources of internal resistance,—our standing army, so to speak, which leaves us a prey to the bacteria of disease. I think the suggestion made by Dr. Peirce carries a great deal of truth with it. I believe that the principle he has called attention to is the key to the solution of the problem of phagedenic pericementitis. And as to our friend who knows all about gout but did not have it, but had erosion, that seems to me to be an impossibility. Either he has erosion and gout, or else he does not know that he has a gouty diathesis. It can be determined by a microscopical and chemical examination of the blood. A great many people, when you ask them if they have gout, know nothing about it. You ask them if they have rheumatism and they say no. I have asked some, "Are you in good health?" and they said, "Yes"; but I found that they were not in good health; they did not realize that they had departed from normal health standards; but by putting them in a normally healthy condition it was easy to demonstrate to them that they had not been perfectly healthy before. I got at it negatively, and life was a new thing to them.

MARION L. WOODWARD, D.D.S.,

Secretary Alumni Association, Boston Dental College.

Editorial.

IS DENTISTRY A REMUNERATIVE PROFESSION?

THE close of the present term in all the dental colleges leads the thought in the direction of the graduating classes passing out to the great world of activity and becoming part of its working life. There is probably no duty of the conscientious professional teacher that carries with it a heavier burden than the anxiety as to the future of the hundreds of young men he has assisted to prepare for the competitive struggle that lies before them. This anxiety is of comparatively modern growth in dentistry, for the college, as late as 1876, that had ninety dental students in the school was regarded as eminently successful. While many of the smaller schools at present do not exceed this, others have four hundred as the normal number, and several have five hundred, with the prospective assurance of extending these limits.

The reason for this great influx into dentistry is not far to seek. The tendency to centralization of capital in every direction, while it may not, as often asserted, make the rich richer and the poor poorer, it does keep the young man of limited means in a subordinate position, bound to long hours of work, with a salary that will scarcely meet his own needs, much less enable him to assist in the maintenance of others. If gifted with extraordinary ability, he may hope eventually to rise, in the distant future, to the position of general manager, but this is so remote that a pessimistic spirit takes hold of his entire nature, and, discouraged, he drops into the ruts of routine life in which he becomes simply a machine for capital to use and exhaust. This state of affairs has assumed serious proportions, and is bound to disturb, sooner or later, the economic conditions of the world. If capital does not create poverty, it at least does create a species of slavery in which men and women are bought and sold through certain hours of every day, and during these periods have no will of their own. This is not all evil, for the majority of workers, who are, perhaps, not qualified either by mental training or natural force to be leaders,

drop, by mental gravitation, into subordinate places and are content.

This is, however, not the case with many who have been educated for higher things. The technical schools are turning out yearly great numbers of young men as civil, mechanical, and electrical engineers, fitted to hold high positions, but who are forced to accept, for long periods, barely sufficient remuneration to keep life together. When, in after years, this may have been increased to the daily wage of the carpenter and bricklayer, it still means a perpetual struggle, and hope dies in the effort.

Parents have sounded the prospects, to some degree, of these various callings, and have hesitated to send sons to institutions for four years, at great cost, to find, in the end, every place crowded.

The result has been that parents, whether wisely or unwisely, have determined for themselves that that profession is the best which, for the least outlay of capital, will furnish an independent livelihood, and this they deem to exist in dentistry and medicine, preferably the former, for it requires, after graduation, less time to become self-supporting. The instinct of parents—for it can scarcely be called knowledge—is mainly correct. The stomatologist occupies a truly independent position, and while his income will rarely reach that of the successful practitioner in medicine, he is more comfortably fixed, in that he not only controls his life work, but is far more independent as to hours of labor.

This brings prominently before the mind the thought, Is dentistry, as practised to-day, a remunerative calling? If this were not so it would scarcely be worth the labor that is being devoted to it in the educational sense, for whatever may be thought of dental educational methods and institutions, and they are constantly subjected to severe criticism, they are not turning out dentists by the wholesale without an anxious regard to their future well-being.

The writer of this has made this subject one of careful study, and has become convinced that the growth of knowledge upon dental subjects by the people at large fully warrants the apparent over-production of dentists. The care of the teeth has ceased to be a luxury of the wealthy, but is eagerly sought by those of moderate means, and even the very poor crowd our college dispensaries. In fact, at no period has the value of dental service been more thoroughly appreciated. The lessons so laboriously taught by the

pioneers in the profession are bearing rich fruit, and to meet the demand this occasions there must be a continued and increasing development of skilled men and women.

This means a gradually decreasing clientage for each practitioner. In the earlier day it was in proportion to population, one dentist for each seven to ten thousand inhabitants; now, if the next census gives seventy-five million inhabitants to the United States, and we have twenty-five thousand dentists,—Polk's Register says over twenty thousand,—we have this reduced to three thousand to each practitioner. While this seems to be a serious reduction, it is more apparent than real, for the higher dental education of the laity amply makes up for loss of numbers upon the financial side, and more than compensates for this loss by the intelligent appreciation of the work, which to the true stomatologist is more than money.

It is true that dentistry, as a money-making profession, is not equal to others. Taking the country through, it is questionable whether, from the increase of the profession, it would average two thousand dollars a year. This means but small savings, for expenses grow, with alarming proportions, as practice increases. It is thought, however, that while it requires more capital to-day to begin the practice of dentistry than it did forty years ago, that capital is well expended, for it gives greater facility in accomplishing the work, and consequently increased ability to earn with far less labor.

It has been a current thought in our literature that all a dentist leaves his family is a life insurance policy. This was largely true in former years, but dentistry has been placed upon an altogether different basis, and the more the true professional spirit is infused into practitioners will this be increased. Dentists must learn to enforce a proper remuneration for services rendered. This should be rated according to the value these are to the patient and the reputation of the operator. There is too much of the mechanical or shop-keeping idea extant, of remuneration at so much per tooth. The operator should be paid for his time, independent of all expense to which he may be subjected.

It is difficult to understand the many life wrecks in the history of dentistry. Indeed, these, in the writer's memory, exceed the successes. The number of the latter, however, in recent years, enforces the belief that with the change of methods of practice has

come a more economic arrangement of time and means, and that in the near future there will be fewer of these unfortunate examples to disturb the thought of those entering professional life. Dr. Allport, of Chicago, was one of those who combined professional excellence with business methods. He publicly deplored, upon a certain occasion, that so few dentists husbanded their means for the period when old age would render them incapable of work. There seems to be no reason why a dentist should fail to accumulate a reasonable sum directly from professional labor. The temptation to some is to enter into hazardous speculation, for which they are poorly fitted, or to take up with side issues which always detract from their ability; in fact, this division of interest invariably tends to lower their work, and it becomes purely mechanical, the professional dying out altogether.

The conclusion is inevitably borne out by facts, that dentistry is not overcrowded; that there is room for all these young graduates, provided they exhibit a marked aptitude for their calling; and, further, that an economical administration of practice will result in ample means for comfort, and even luxury, and, at the end, something will be left for those dependent upon them. This is more than, it is feared, can be accomplished by those in other branches of professional work.

WESTERN CRITICISM.

It is pleasant to observe that our friends in the West have taken to repeated critical observations of men and things in the East. It is always a sign of healthy progress when one turns upon his neighbor to find the "mote," for sooner or later he will discover the "beam" somewhere in his own mental anatomy. There is hope, therefore, for the editor of the *Western Dental Journal*, and his readers may look forward joyfully to the time when his journal will present "expensive cuts" for their edification and instruction in art. In a recent number the editor and his assistant were suddenly awakened to the fact that the "witch-fires didn't do much for Salem, after all." This fact should have a wide circulation, for the impression has long been held that the goblins of the long ago have had much to do with the rush of travel to that interest-

ing old town for many years past, and which will likely be continued for years to come.

The witchery that so disturbed our trade contemporary lies in the fact that one of Salem's good citizens, and a dentist, read a paper before the American Academy of Dental Science in Boston, and in due time it found its way upon our pages. In order that he and his assistant may not fail in receiving due notice in that cultivated quarter of the republic, the editorial and addition are quoted in full.

"THE MERIAM EXTENSION CROWN.

"The initiative original article in the INTERNATIONAL DENTAL JOURNAL for March describes the method of H. C. Meriam, of Salem, Mass., in applying the loss of a first bicuspid, which reminds us of specimens of prehistoric dentistry. The method is advised where the first molar has been lost and the second molar has taken its place. A band is fitted around the molar,—which he says can be done 'without any trimming,' as 'the second superior molar often tapers slightly, being a little larger at the neck than at the crown' (*sic*). An English tube tooth is selected for the missing bicuspid, and after banding is connected with the molar band, by a bar of spring gold wire, curved around the intervening bicuspid, 'leaving it free and clean.' This contraption is then cemented in place. The article is illustrated by an expensive cut, showing a bicuspid supplied on each side; on one side the bicuspid is entirely gone, and on the other the root remains and the new tooth is allowed to rest upon it (though why the root did not entirely support the crown, goodness knows).

"On account of the prominence of the article and the expensive cut (by the way, the cut shows that upon the right central root is a poorly adjusted crown), we suppose *some one* must have thought this kind of bridge a good thing. Our opinion is that, under ordinary circumstances, it might last forty-eight hours, that the piece would be filthy if it did last longer, and the molar holding the band and the bicuspid 'left free and clean' would be ruined. In the discussion following the description of this case, Dr. Meriam said, in speaking of a similar case, 'When I had sent my modest bill, the check came back with a note which said, "If you had charged me one thousand dollars, I should have called it cheap."' Oh, dear! oh, dear! the witch-fires didn't do much for Salem, after all."

The language made use of in the following, while it may not suit the æsthetic tastes of the city honored by the name of Hawthorne, is worthy of reproduction.

"Editor Western Dental Journal:

"Permit me to refer you to the first article in the INTERNATIONAL DENTAL JOURNAL for March, by Dr. H. C. Meriam, of Salem, Mass., on 'Extension Crowns,' and say, in reference to it, that for innate folly, igno-

rance, and superstition old Salem still holds the palm. Verily, Mr. Editor, we hold to the old, old truth, 'The wise men came from the East,' and never went back. Beggar that I am, I am ever poor in speech to express how utterly damnable is every statement of the author. No wonder bridge-work is in disrepute among Eastern patients.

"C. L. HUNGERFORD, D.D.S."

It may interest the editor of the *Western Dental Journal* and his collaborator to be informed that the editor of this journal was quite aware that the method presented was not entirely novel; indeed, aside from cementing the band over the molar, almost precisely the same plan was used in the insertion of a single tooth worn by himself over thirty years ago.

It is probably useless to argue with our critics that such a fixture has a certain value, and may be made as permanent and as cleanly, even more so, than the permanent abomination bridges so much in vogue in certain quarters, where malodorous conditions are apparently not regarded as of much consequence.

When dentists who write for journals will spend as much time preparing artistic models as the author of "The Meriam Extension Crown," they will find editors more than willing to secure the very best ability attainable to have them properly illustrated. It has been very rare in our editorial experience that a more beautifully prepared model has been sent to this office, and it is worthy of special commendation that in one instance, at least, it was demonstrated that the writer of the article was equal to the occasion. When dentists learn to prepare their manuscripts properly and, where cuts are needed, draw the models, or have them drawn, with some degree of artistic skill, editors of dental journals will treat more kindly requests for illustrations.

No doubt our brother in Kansas City will agree with this as a general proposition, and should he have occasion to need added art work on his journal we can cordially recommend the eastern cities where the printers' and engravers' art is understood and appreciated.

THE HISTORY OF DENTISTRY.

ATTENTION is called to the notice of the chairman of the committee appointed to report a "measure looking to the preparation of a full history of the dental profession."

The preparation of such a history will be a very serious task, and every year allowed to lapse increases the difficulty of its accomplishment. If it were confined solely to a history of dentistry in the United States and Canada, it would be a matter of great labor and conscientious research; but should it be proposed to extend this to a history of dentistry throughout the world, it would become a task which, it is feared, would be impossible of accomplishment. If such a history is attempted, it should be confined to this country, and there is quite sufficient of interest here to occupy the historian for a long period.

Several attempts have been made in this direction, the most valuable being "A History of Dental and Oral Science in America. Prepared under the direction of the American Academy of Dental Science, Boston, 1876;" but all are, at present, defective, and often-times lead the searcher after facts astray. What is needed is a condensed compilation of absolute and verified statements of historical facts. These may be difficult to procure, but there are many yet living who have passed through a large portion of the work of the last half of the present century, who could give valuable aid in this direction. To these the circular should appeal with force. An early answer to the queries will aid the committee in making up its report for the next meeting of the National Association.

Bibliography.

DEGENERACY: ITS CAUSES, SIGNS, AND RESULTS. By Eugene S. Talbot, M.D., D.D.S., Fellow of the Chicago Academy of Medicine, Member of the Chicago Academy of Sciences, etc. With One Hundred and Twenty Illustrations. London, Walter Scott, Ltd.; Charles Scribner's Sons, New York, 1898.

This work of Dr. Talbot is, in the estimation of the reviewer, by far the most satisfactory of any that have preceded it from his

prolific pen. From the first page to the last it is of profound interest to the thinker who studies effect back to cause, and for the moralist it abounds in a multitude of facts that will aid him in arriving at just conclusions.

To many, who look askance whenever a work upon degeneracy is mentioned, this book may be regarded as simply one to be avoided as a dull accumulation of facts upon which crude conclusions have been based. No greater mistake could be made. The facts are given, it is true, but they are largely permitted to carry, by their own force, to legitimate conclusions. It would seem impossible to lay down this book without a positive conception that the human race is, without exception, born to degeneracy. That "the sins of the parents have been visited upon the children" through countless generations, until all, from the most cultivated to the most debased, are but modifications of inherited tendencies. It leads further to the conclusion that man, in the generic sense, is to a large degree irresponsible for his actions. This does not accord with the legal or religious idea, and in some sense is repugnant to all right-thinking minds, but there is this compensating thought, in this connection, that while humanity may degenerate through heredity, it can also advance by the same law, and this can best be accomplished by a thorough understanding of causes that have led to this degeneracy, and, thus building upon a gradual and ever-ascending scale, ultimately will obliterate the physical and moral ancestral defects. That this cannot be accomplished in one generation is fully demonstrated in this book, but that they can be removed is proven in the history of all civilizations. Were it otherwise, progress would be impossible. The deformed and the depraved, made so by defective knowledge or absolute ignorance, we may always have with us, but in a lesser degree as intelligence expands. It is in this direction that the work of the author should accomplish its best results.

It has been prepared with a view to interest those for whom it was especially intended, and is, therefore, divested of dry technicalities and replete with original views and impressive facts derived from various well-known authorities. These are of deepest interest, and frequently of a startling nature, as they demonstrate vividly the difficulties mankind labors under in the evolutionary process to a higher life.

The author says in his preface, "The work has been written

with a special intention of reaching educators and parents. With this object, it has avoided laying stress on any one cause of degeneracy and ignoring factors which produce it and are aggravated by it. The *doctrinaire* reformer will here find no support for any limited theory. While it does not pretend in the slightest degree to give all the details of degeneracy, it attempts to lay down general principles for practical purposes in a way that permits their application to the solution of sociologic problems."

The heredity problem is summed up in a quotation the author gives from Luys, which is worth giving in full, as it practically covers the whole trend of thought upon this subject: "Heredity governs all the phenomena of degeneracy with the same results and the same energy as it controls moral and physical resemblances in the offspring. The individual who comes into the world is not an isolated being separated from his kindred. He is one link in a long chain which is unrolled by time, and of which the first links are lost in the past. He is bound to those who follow him, and to the atavic influences which he possesses; he serves for their temporary resting-place, and he transmits them to his descendants. If he comes from a race well endowed and well formed, he possesses the characters of organization which his ancestors have given him. He is ready for the combat of life, and to pursue his way by his own virtues and energies. But, inversely, if he spring from a stock which is already marked with an hereditary blemish, and in which the development of the nervous system is incomplete, he comes into existence with a badly balanced organization; and his natural defects, existing as germs, and in a measure latent, are ready to be developed when some accidental cause arises to start them into activity."

To show the scope in part of this admirable work, the contents include a very full "Introduction," "The Stigmata of Degeneracy," "Heredity and Atavism," "Consanguineous and Neurotic Intermarriages," "Intermixture of Races," "Toxic Agents," etc.

While the temptation comes to the reviewer to quote largely from the pages replete with facts, he is aware that this would give but an incomplete idea of the book as a whole. It must, therefore, be read in its entirety to compass the aims of the author, which seem to be to elucidate general principles and thus aid in advancing mankind to a higher standard physically and morally.

METHODS OF FILLING TEETH. An Exposition of Practical Methods which will enable the Student and Practitioner of Dentistry successfully to prepare and fill all Cavities in Human Teeth. By Rodrigues Ottolengui, M.D.S. Second edition. Two Hundred and Seventy-three Illustrations. The S. S. White Dental Manufacturing Company, Philadelphia; Claudius Ash & Sons, Limited, London, 1899.

This book has reached a second edition after the lapse of six years. This is not very creditable to the teaching force of the United States, for as a text-book for use in colleges it stands without a rival in its practical teaching of "methods of filling teeth." This slow absorption of an edition is, therefore, not due to a lack of positive merit, but is in all probability owing to a growing feeling on the part of students that they can get along without text-books during their student days in the practical branches, reserving the purchase of these to a future day that may never come.

This work of Dr. Ottolengui was fully reviewed in this journal upon its first appearance, and there is no reason now to extend or alter the opinion then held. While the reviewer does not regard with favor all the methods proposed, it remains true, in his opinion, that a careful following of all these, so clearly illustrated, will bring success even with a moderate degree of mechanical ability. While this latter talent is indispensable to great success in filling teeth, a very limited degree will suffice with careful and detailed teaching; while, upon the other hand, the mechanical genius may prove an entire failure, in his earlier years of practice, because of imperfect preliminary suggestions. This book, therefore, to both classes will be a valuable aid, and will prove a solution to them of many problems.

In reading this book, and considering the lapse of time intervening between the first and second edition, the thought naturally arises that this very fact demonstrates the marked advance in teaching. Forty years ago the ideas conveyed upon its pages would have been greedily absorbed by the then practitioners, and the book would have been regarded as a veritable treasure-house of practical ideas, to be procured at whatever cost to the individual. Now these same teachings are the daily experience of students, until they begin naturally to feel that all has been acquired that it is possible to learn in this branch of dentistry. This is to a

large extent true, for it may be said that all the problems that once disturbed the fathers have been met and conquered.

Novelty in practice is not, therefore, to be found upon the pages of this book, but the manner of treatment of the various topics, coupled with a gracefulness of style, gives character to every description, claiming the attention of the reader.

While the book is complete in its practical details, it is measurably deficient whenever the author steps beyond the line to which he has limited his work. His etiology, limited as it is in the view of the writer of this, is singularly defective. It is not to be supposed that he is not familiar with the ideas extant, for he is probably one of the best informed upon the literature of the dental profession. This being so, why should he give this definition to abrasion: "*The cause is that the friction from the food causes a more rapid wearing away of dentine than of more resistant enamel.*" It is strange that any one should consider that food alone constitutes the principal factor in this destruction. Food acts but a minor part in the loss of tissue. The constant wear of attrition is a secondary factor, but the combination of attrition with acid conditions during sleep are unquestionably primal factors in destruction, the passage of food over occlusal surfaces occupying an inferior place in the deterioration of surface.

The etiology of erosion is not entered upon to any extent, and it would have been better had the author omitted all attempts in this direction, unless willing to extend his ideas to a more exhaustive treatment of the topic in hand.

In discussing materials for filling, the author can see but little good in tin or gold and tin combined. He seems absolutely ignorant of the value of the former, and gives but a paragraph to its use and nothing to its manipulation. This is certainly an error in a text-book. There is no place here for professional prejudices. The consensus of opinion of the best men in the dental profession, and of equal ability with the author, is that tin should never be permitted to drop out of use as a material for filling teeth. That it requires equal skill in manipulation with gold is admitted, but when thus placed in teeth it has a positive value, surpassing in many instances amalgam, and in teeth with hypersensitive dentine it is superior to both gold and amalgam. Tin and gold, as a material, is practically condemned as of no value. This is equally inconceivable in view of the experience, both at home and abroad, with this combination.

The main defect in the book seems to be that it is confined too much to the author's own ideas. These are, as has been stated, of positive value, but confining his method of treatment entirely to cohesive gold leads the untrained to the impression that there is no value in the use of non-cohesive gold, and the author intensifies this impression by stating, "In my own experience I have never discovered any special use for non-cohesive gold," and then gives a page of negative results. It is a waste of words to decry the value of this character of gold. To those who by long practice became familiar with its value the neglect of the author to explain the methods of use will seem worthy of decided censure and, in their estimation, would deservedly condemn the book. This would be an unfortunate conclusion. The true teacher must be many-sided and capable of broad explanations, but the author is right in confining his work mainly to those methods he had practically tested. While this is true, it places limitations upon the value of the book to the older practitioners and, possibly, may be, to that extent, an injury to the coming generation of dentists.

Criticism might be extended here and there throughout the volume, but this would only serve to call attention to slight defects in an otherwise carefully prepared work. It is thought, however, that the author would strengthen faith in the production with some by removing much of personal prejudice apparent in this volume from the third edition, when that should appear, a prejudice seemingly felt against all methods except those demonstrated to be of value in his own practice.

The book is presented with the care as to details so well known in all the production of the S. S. White Dental Manufacturing Company.

Obituary.

HENRY HOWARD KEITH, D.D.S.

HENRY HOWARD KEITH, the only son of Amos B. and Katie M. Keith, was born at Salem, Mass., June 14, 1847. He resided in Boston until the beginning of the Civil War, when the family moved to Chicago. After working a short time in a machine-shop

to learn the use of tools he was apprenticed to his uncle, who was a jeweller. In 1864 Dr. Keith went to Philadelphia and entered the laboratory of Dr. Charles Essig. He made such rapid progress that when Dr. Essig moved his laboratory to Baltimore, in 1868, he took Dr. Keith with him, and while there he met the lady who afterwards became his wife. After spending about two years in Baltimore he went to Newark, N. J., where he worked for Drs. DaCamare and Pinney until he was married, in January, 1871. His wife was Miss Nina L. Benteen, of Baltimore.

He came to St. Louis in February, 1871, and in the fall of the same year opened a laboratory. He was successively with Drs. Morrison, Eames, Park, McKellops, and Lange. He attended the Missouri Dental College, and graduated in 1873, and afterwards held positions in the same college, in 1875-76, as demonstrator of Mechanical Dentistry, and was professor of Mechanical Dentistry from 1876 to 1879 inclusive.

Dr. Keith's talents lay in the direction of plate work, in which he had no superior, though he had a large practice in operative work. His heart was in his profession, and he spared neither time nor pains when engaged in a difficult piece of work; and the greater the difficulties the more he enjoyed overcoming them,—in which he seldom failed. As an operator he was equally skilled, and was extremely gentle and considerate of his patients.

His chief characteristic seemed to be a desire to help the younger members of the profession. Every one coming to St. Louis met with a pleasant welcome from him, and he always did what he could to advance them.

At Lake Minnetonka, in 1888, he contracted the disease that finally caused his death. His summers, for seven years past, have been spent in Asheville, N. C. He returned to St. Louis in September, 1898, and though in very poor health, he resumed his practice. His health failed very fast, and his death was the result of peritonitis. He died January 26, 1899, and was cremated at the St. Louis Crematory, as he had desired. His ashes will be buried at Riverside Cemetery at Asheville.

As an instructor he was one of the few men who seemed capable of imparting his knowledge so that the one instructed could not fail to grasp the ideas of the master mind. He was a member of a sketch club and well versed in photography. For that reason he was an adept in illustrating his subject. His office was a study in

itself for neatness, convenience, and all that was new in modern dentistry. His laboratory was equal to that of his office. He was considered one of the best continuous-gum workers in this country. All his work in this particular line had the finish of a master artist.

He was a man who was continually striving to accomplish something that would advance his profession. He was an active member of both State and city societies. Of the latter he served four years as recording secretary, and in 1882 was the president, and no better drawing card could be announced than the mere statement that Dr. Keith would either read a paper or give a talk on some dental subject. As a professional man he was a model. He was never known to speak ill of any professional brother so as to advance himself in the estimation of his patients. His professional liberality was one of his many good traits that should be observed by us all. He was always willing to assist any dentist, both financially and professionally, and nothing would give him greater pleasure than to impart his practical knowledge to any brother needing his advice. He was a frequent contributor to the dental journals.

JOHN G. HARPER,

WALTER M. BARTLETT,

JOSEPH G. PFAFF,

Committee.

ST. LOUIS DENTAL SOCIETY.

Domestic Correspondence.

DOUBLE RESECTION OF THE LOWER MAXILLA FOR PROTRUDING LOWER JAW.

TO THE EDITOR:

SIR,—My article under this title (*INTERNATIONAL DENTAL JOURNAL*, October, 1898), in the opinion of some critics, seems to require explanation. As a scientific criticism, it was not assumed that it would create the bad feeling evinced in the acrid, shallow criticism it has provoked.

This operation was suggested to me by the late Dr. W. W. Allport a quarter of a century ago, with whom I discussed its merits many times. It seemed to be thoroughly indicated in extreme

development of the lower jaw. With Drs. Allport, Brainard, Gunn, and other surgeons, I was of opinion that such an operation was not indicated by the fact that the pulps in the anterior teeth were liable to be destroyed. I have, therefore, refused to attempt the operation for this reason, although I have had a number of patients on whom such an operation might be performed with *éclat*.

The article published by Dr. James W. Whipple in the *Dental Cosmos* for July, 1898, would have passed without notice. I should have waited with great interest for the results of the operation had it not been for the article by Dr. Edward H. Angle (*Dental Cosmos*, August, 1898), in which he claims (page 635) that the "writer was the first to suggest this operation, and has for the past four years been discussing with surgeons its prognosis," etc. In a foot-note it is stated, "Supplement to the Angle System of Regulating and Retention of the Teeth and Fracture of the Maxilla. Now in press." Then follow the photograph of a man and a picture of the relation of the jaws to each other, and a diagram of the proposed operation.

My aim in criticising was dictated by what are usually regarded as the highest motives,—the aim to secure truth, both as to priority and to prevent suffering from premature adoption of an operation which indications (other than commercial advertising reasons) did not justify. The last criticism was doubly justified by the fact that it was proposed to advocate the operation the value of which was not demonstrated in an authoritative text-book.

Illustrations are supposed to illustrate actual conditions. If they are merely hypothetic, the fact should be stated; otherwise their use doubly justifies criticism based on their alleged value as illustrating facts. If an error be dangerous when supposed to be a fact, it is doubly dangerous when the alleged fact turns out to be a mere theory. The intent of the criticisms and their motive were fully explained in a private letter to Dr. Angle, so that there should be no possible misunderstanding.

Certainly this procedure was calculated to destroy any belief in a personal animus, and to show that benefit, not injury, was intended by criticisms which any scientific dentist has the right to make.

I congratulate Dr. James W. Whipple on the (to me) unexpectedly valuable results he has obtained from the operations (*Dental Cosmos*, March, 1899).

If after a series of similar operations like results be obtained, this operation must be recognized by surgeons as one of the most remarkable in modern times, and those who were instrumental in bringing it into use will undoubtedly deserve the highest credit.

Those who are acquainted with me know well that for the past two decades I have emphatically advocated original research. No one in the profession would go further or do more to foster this work than

EUGENE S. TALBOT.

CHICAGO, ILL.

THE MEDICO-CHI WINS.

PHILADELPHIA, March 22, 1899.

TO THE EDITOR:

SIR,—The Medico-Chirurgical College petitioned Common Pleas Court No. 3 for leave to amend its charter so as to grant diplomas and degrees in dental surgery, etc.

This was resisted by the Philadelphia Dental College on the ground of want of authority to do so, etc. The Common Pleas Court decided in favor of the Medico-Chi, and the Dental College took an appeal from his decision. The Supreme Court, in an opinion by Justice Dean, has just confirmed the decision of the lower court, and dismissed the appeal.

L. WEBSTER FOX, M.D.,
Secretary of the Board of Trustees.

Notes and Comments.¹

A CHINESE NAIL.—Isaac T. Headland, professor in Peking University, tells in *The Advance* of a man who came to receive treatment in a hospital in China, who had given many years of his life to nail-culture. From his seventeenth year he had allowed

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street Philadelphia.

the nails on his third and little fingers to grow without trimming, and when Dr. Curtiss measured them he was in his fortieth year. The nails were one foot in length from the ends of the fingers. The man "had fitted small bamboo tubes on the ends of his fingers as shields for his nails, and thus had protected them for twenty-three years." He seemed to think that he had not lived in vain, but absolutely he had done nothing notable except to make his hands useless by developing two nails.

REPAIRING GOLD CROWNS.—Dr. E. A. Randall, in the *Dominion Dental Journal*, gives the following method of repairing gold crowns. Suppose you have made a gold crown, and in finishing you go through the shell, making an unsightly hole. If you undertake to solder this, the chances are that you will have three or four holes caused by the solder melting out at the joints. To prevent this trouble, paint the crown all over the outside with whiting mixed thin, except around the hole which you wish to repair; fill this with a plug made from gold-foil, touch it up with a drop of borax water, and put a bit of gold solder inside, heat it with the blow-pipe, and success will be the result.

COLOR IN IMPLANTATION.—In all natural inlays or implanted teeth the part inserted will take on the color of the adjoining teeth or the adjoining part. That is a peculiarity in implanted teeth; but you must use a tooth, or section of tooth, of the same temperament as that upon which you are working. For instance, if a tooth is of a bilious temperament, or a nervous temperament, you want to use one of that temperament, not take the tooth of a bilious temperament for an operation upon the tooth of a nervous temperament. The teeth of the nervous temperament are of a bluish color; the bilious temperament of a yellowish color. With that care you can match a tooth almost perfectly.—*Dental Brief*.

THE DISPLAY OF GOLD IN TEETH.—Professor E. T. Darby, in writing upon the subject, says, "I am frequently shocked, when I see the mouths of some people, to find glaring gold crowns on the bicuspid and anterior teeth. Only last week I met a lady in a trolley car in Philadelphia whom I had known years ago, but

who for some years past has been living in one of the Southern States. As soon as I had entered into conversation with her I observed that she had three gold crowns on her upper bicuspsids, and a great display of gold in the incisors and bicuspsids. A pretty face almost ruined by this shocking display of gold.

"I have sometimes thought that this craze for crowning teeth with gold was more prevalent in the Western and Southern States than in the Middle and Eastern States, but it may be that my attention has been more frequently called to cases coming from those sections of the country."

Current News.

THE REVISED AND COMPLETE PROGRAMME OF THE AMERICAN MEDICAL ASSOCIATION, SECTION ON STOMATOLOGY.

Chairman's Address, Dr. G. V. I. Brown, Milwaukee.

"The Human Face and Jaws as a Danger Signal of Systemic Defect or Disorder," Dr. J. G. Kiernan, Chicago.

"Cocaine and Eucaine; Their Relative Toxicity," Dr. A. H. Peck, Chicago.

"Epithelial Structures in the Peridental Membrane," Dr. Frederick Noyes, Chicago.

"Infectious Ulcerative Stomatitis," Dr. John Marshall, Chicago.

"Oral Surgical Operation" (with illustrations showing remarkable results), Dr. G. V. I. Brown, Milwaukee.

"Some Points on the Etiology, Pathology, and Treatment of Persistent Pyorrhœa Alveolaris," Dr. G. T. Carpenter, Chicago.

"Interstitial Gingivitis" (so-called Pyorrhœa Alveolaris), giving the result of original work, with large photographic illustrations showing the progress of the disease from the beginning to the exfoliation of the teeth, Dr. Eugene S. Talbot, Chicago.

"Syphilitic Infection from Dental Instruments, with Cases," Dr. W. L. Baum, Chicago.

"Professional Education and Ethics," Dr. A. E. Baldwin, Chicago.

"Neuralgias due to Progressive Periosteal Necrosis," Dr. M. H. Fletcher, Cincinnati.

"The Treatment and Positive Cure of Pyorrhœa Alveolaris in Connection with Restoration of Normal Articulation," Dr. W. G. A. Bonwill, Philadelphia, Pa.

Dr. Bonwill will hold clinics independently of the meeting of the Section on Stomatology to those who wish to meet him.

G. V. I. BROWN, *Chairman*,
EUGENE S. TALBOT, *Secretary*.

THE NATIONAL DENTAL ASSOCIATION—COMMITTEE ON HISTORY.

DEAR DOCTOR,—At the first meeting of the Association a committee was appointed to report a *measure looking to the preparation* of a full history of the dental profession. This committee will make a report at the meeting next August, and the character of the report will depend somewhat on the interest taken in this important subject by the members of this Association and the profession generally.

All must admit the necessity for a full, carefully prepared, and *authoritative* history of dentistry. The time (as the century closes) is most propitious, and the longer it is delayed the more difficult it will be to secure a reliable result.

The committee will be greatly helped in making its report by any interest you may take in this matter, and would be glad to have your replies to the following queries, together with any advice, suggestions, or objections you may be pleased to give.

1. Will you please name any books, pamphlets, manuscript reports, in fact, any matters of interest you may possess, which, at the proper time, might be available for the history?

2. Will you give the names and addresses of any dentists in your vicinity who have written on the subject or are interested in dental history?

3. Should the proposed work, in your opinion, be confined to

a history of the profession in America, or should it be of dentistry from the earliest times all over the world?

4. As it is necessary for us to report on the probable financial success of the idea, would you be willing to subscribe, at the proper time, for a satisfactory history of the dental profession?

CHARLES McMANUS,
Chairman.

80 PRATT STREET, HARTFORD, CONN.

DENTAL COMMISSIONERS OF CONNECTICUT—LEGAL NOTICE.

THE Dental Commissioners of Connecticut will meet in the Supreme Court Rooms at the Capitol in Hartford, Monday, May 15, 1899, at ten o'clock, to examine candidates for license and attend to all matters proper to come before them. Persons desiring to practise in this State must apply to the Recorder for proper blanks, which they will fill out and return to him before the day of examination.

GEORGE L. PARMELE,
Dental Commissioner and Recorder.

HARTFORD, April 10, 1899.

DENTAL ASSOCIATION OF NEW SOUTH WALES.

THE Fifth Annual Meeting of the Dental Association of New South Wales was held at the Australia Hotel on Tuesday evening last, and was well attended. Dr. A. Burne, President, occupied the chair.

The President's Report for the past year dealt (among other matters) with the present position of the Dental Bill and the untiring work of the Council in its struggle to get at least eight clauses of the bill passed in a House talking nothing but federation.

The members expressed their confidence in the Council and

appreciation of their endeavors, and felt confidence in the final result of the Bill being passed.

The balance sheet being read showed a balance in hand of £97 17s. 3d., which, after deducting all the heavy expenses incurred, proved very satisfactory.

The following officers were elected for the year 1899-1900: President, Dr. A. Burne; Vice-Presidents, Messrs. H. Paterson and S. Chaim; Hon. Treasurer, Dr. O. Davis; Committee, Messrs. C. C. Marshall, H. S. Newton, E. A. Gabriel, and J. S. Darton; Auditors, Messrs. B. Corbett and C. Chandler; Hon. Secretary, Mr. H. Taylor.

The President (Dr. Burne), in returning thanks for his re-election, pointed out the present position of the Dental Bill and the prospects of its finally becoming law in the near future. He also expressed thanks to the Council and secretary for their support during a very trying term of office.

A vote of thanks to the chairman closed the meeting.

H. TAYLOR,
Secretary.

SOUTH DAKOTA STATE DENTAL SOCIETY.

THE Seventeenth Annual Meeting of the South Dakota State Dental Society will be held in Yankton, on Wednesday, Thursday, and Friday, June 7, 8, and 9, 1899.

C. S. BLUNT,
Secretary.

THE International Dental Journal.

VOL. XX.

JUNE, 1899.

No. 6.

Original Communications.¹

FALSE TONSILS.²

BY ROBERT H. M. DAWBARN, M.D., NEW YORK.³

THE subject upon which I have been asked to address you this evening is in one respect unique.

Nowhere else, I verily believe, than within the magic circle of "Waldeyer's tonsillar ring"⁴ can be found a common meeting-ground for seven distinct classes of practitioners, all really interested in the subject.

The otologist, because here lies the commonest cause of deafness. The rhinologist, because here is found one of the most frequent sources of nasal catarrh. The laryngologist, for the reason, among others, that obstruction of the vault interferes wofully with tone-production, as also do the high narrow arch of the palate and abnormally small antra. The stomatologist, because the disease in question leads to peculiar malformations of the upper jaw and to

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read at a meeting of The New York Institute of Stomatology, held March 7, 1899.

³ Professor of Surgery and of Surgical Anatomy, New York Polyclinic Medical School and Hospital; Surgeon to the New York City Hospital.

⁴ "Waldeyer: Ueber den lymphatischen Pharynxring." *Deutsche Medicinische Wochenschrift*, No. 20, 1884.

defective dentition, with consequent necessity for regulating-work. The neurologist, because a half-dozen psychoses and neuroses have an occasional starting-point here, from reflex irritation, as well as from a poisoned and ill-aërated blood which cannot properly nourish the nervous centres. The general practitioner, because of effects upon all organs and bodily functions from the cause just hinted at; and, finally, the general surgeon diffidently expresses his interest in the subject—just because.

I believe that all surgeons commonly operate for removal of tonsils of all abnormal types and in all situations. Nevertheless, the field for general surgery is narrowing as rapidly as that for general medicine to-day; and we can hardly tread without stepping upon some brother's special field. Hence the diffidence aforesaid.

As evidence in one specialty alone of this general tendency to elbow us off the face of the earth, a well-known surgeon remarked to the writer not long since that gynæcology is steadily advancing uphill; he is keeping his weather eye upon it.

Time was when it was limited above by the brim of the true pelvis; now it is nearer the brim of the hat. They are rising in the world; and at present nothing short of a line firmly drawn just beneath the chin seems likely to stop their upward march. Maybe they too will find excuse for entering the magic circle of Waldeyer!

I have spoken of pharyngeal false tonsils. The correct term is pharyngeal lymphoids, or lymphoid growths. Adenoids is the more usual designation, but there is no pathological justification for it, and writers careful in nomenclature are already dropping this unfortunate term.

These vegetations are practically identical in structure with the faucial tonsils. That is the same as saying that they are open-meshed lymph-nodes, very vascular, having, however, no deep crypts or pockets, but abundance of irregular spaces between them wherein dirt and discharges are held, and being in a measure without the dense capsular investment of lymph-nodes elsewhere.

At what age do they appear, and with what frequency? There seems to be no period even of early infancy exempt. One of the worst cases I have cured was in a baby not nine months old. A surprisingly large amount of lymphoid material was removed.

Regarding the frequency, doubtless climate is a prominent factor therein. When, less than a generation ago, the disease began to be generally recognized, it was at first claimed that five per cent.

of all children suffer therefrom, to some degree, in our very severe climate. But of late I am sure that this estimate is by those competent to judge regarded as much too low. Some specialists double it; and yet I can well believe that in the tropical and sub-tropical zones, and especially where the air is comparatively dust-free and the variations in temperature and humidity are less startling than with us, there may be much lower percentages than I have named.

The ill effects of large pharyngeal and faucial tonsils are numerous. With an audience of stomatologists I will, however, only discuss and dwell upon those having a direct bearing upon that specialty of medicine.

Perhaps the most prominent of these bad results are four:

1. The high narrow arch of the palate.
2. The insufficient development of the upper jaw.
3. The dentition, irregular in order and imperfect in quality.
4. The tendency to decay, especially of the teeth nearest these growths, and to various types of stomatitis and gingivitis, mainly induced by the myriad microbes which the interspaces of these vegetations harbor and encourage.

1 and 2. To study these in order: How shall we explain the high, narrow hard palate which is so frequently found in children subject to the troubles in question? After considerable thought I would reply, that there seem to be at least six factors in its causation.

(a) The first and most important of these I believe to be a purely mechanical one. To explain: I am surely not overstating the fact if I say that nine out of every ten cases of pharyngeal tonsils are also cases of diseased and abnormally large true or faucial tonsils.

It is certainly the rule with me rather than the exception to have to remove these at the same operation with the emptying of the obstructed pharynx.

Now, I am certain that any other surgeon will agree in telling you that a fact too frequently overlooked is the firm adhesion so often found, when sought for, between the diseased tonsil and the pillars of the fauces, and especially the anterior pillar. An operator neglects his duty who does not look for and carefully separate such adhesions; and sometimes this is not easily done, for they twain have become one flesh, so to speak.

This being true, it seems plain that in the act of swallowing, the large tonsils, being dragged down mechanically with the bolus

of solid food in the act of swallowing, in turn exert a distinct downward pull or tug upon their adherent pillars; and these in turn must pull down upon the sides of the bony palate, to which they are attached. Inevitably, when many thousands of times this tug is repeated, in the course of months and of years, a lateral narrowing of the arch has to result. (The writer has recently learned that Dr. Dwight L. Hubbard also holds the opinion as to causation just expressed herein, but does not know who originated it.) If this explanation be the true one, it follows that we should see the high, narrow arch in its extreme development mainly in the cases where tonsillar hypertrophy with adhesions to the pillars of the fauces is particularly well marked, and beginning while the bones are still young and soft enough to be capable of readily yielding to such force; and this I believe to be true, so far as my own observations go.

(b) The second factor in causing the narrow arch is so obviously important that no one can gainsay it. Once let this condition be begun by the cause just studied, and presently we will find that the narrow superior dental arcade will begin to articulate towards the inner or lingual side of the inferior dental arcade; for the lower jaw is not especially involved, and develops naturally, therefore becoming wider in the transverse measurement between its alveolar process than the upper jaw. As soon as such abnormal articulation has well begun, every time the teeth are firmly opposed they will tend to maintain the narrowness of the upper arch, and even to exaggerate it.

(c) The third factor in causation of this malformation of the upper jaw has to do directly with the pharyngeal obstruction and not now with the faucial. It seems an axiom in nature that any organ, any function, not put into use becomes atrophied and shrunk. Of this numerous instances will occur to you all. With the pharynx so filled up that the child has become a mouth-breather, the nasal air-passages have no longer the same *raison d'être*. They become comparatively useless in the economy, and from all sides nature begins to close in upon this waste space, largely perhaps from atmospheric pressure. The rising of the arch of the palate, which is also the floor of the nose, is a step in that process.

(d) In the case of young mouth-breathers the still soft bones of the upper jaw may well be expected to yield in some degree to

the downward and continual traction of the soft parts of the sides of the face, pulled upon by the weight of the fallen lower jaw. The effect of this must necessarily be to bring the sides of the arch nearer together.

(e) In a recent most interesting study of the stigmata of degeneration, Dr. Frederic Peterson, one of our highest authorities, has discussed many of these, and among others he includes abnormally shaped palates, specifying the high, narrow, or Gothic roof of the mouth, the hip-roofed shape, the abnormally flattened, and a few others. I do not mean to have you infer that either he or I believe that more than a small minority of such palates represent such stigmata; but a few do, and hence we must include this factor among our causes. In some instances, though not indicative of degeneration, the narrow arch, or other unusual shape is unquestionably a matter of family inheritance, just as the shape of the nose is for example.

(f) Dr. J. B. Littig has pointed out that normally the tongue against the roof of the mouth supports the latter and maintains its normal shape while the bones are soft, in nose-breathers. But in mouth-breathers the tongue no longer can serve this useful function.

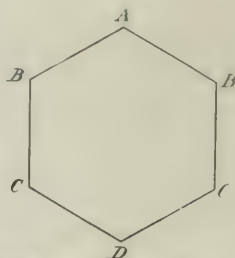
3. The third of the bad results of a stomatological nature, to which I alluded a few minutes ago, was dentition irregular in order and imperfect in quality. This it would seem can readily be explained since it is in the same category with the numerous other physiological activities adversely affected by insufficient oxidation, and by continually poisoned salivary and mucous secretions, with consequent anæmia and malnutrition.

4. Regarding a fourth group of symptoms caused by the disease we are studying, I would allude to the readiness wherewith the teeth of these children decay, and especially those teeth which are hindmost, thus lying nearest to the poison-filled tonsils or pharyngeal vegetations.

Quite recently, in talking informally of tonsillar troubles, a member here present volunteered the remark that he was sure he had observed this, and two other members confirmed the statement from their own experience. It will be interesting to ascertain the general views upon the point, in the discussion hereafter.

The diagnosis: How shall this be made? Of the six way-stations upon the ellipse of Waldeyer's lymphoid ring, the lowermost three

are open to ocular inspection with some degree of ease,—*i.e.*, the tonsil of the tongue on its upper surface and quite close to the epiglottis, and the two true or faucial tonsils.



A, Luschka's tonsil; *B*, Eustachian or tubal tonsils; *C*, true or faucial tonsils; *D*, glossic or tonsil of the tongue.

The symptoms produced by hypertrophy of the glossic tonsil need not concern us in this paper. The other three way-stations are all pharyngeal ones,—namely, the uppermost or Luschka's tonsil, and the two tubal ones, or cushions of the Eustachian tubes.

Of course, the scientific and exact way of diagnosis is to examine the pharynx by aid of the forehead mirror, and the laryngoscopic or the post-nasal, which is a little mirror just such as you employ for help in your own work. But the educated finger-tip is quite sufficient though a more unpleasant way to determine absolutely the need for operation.

One can recognize with ease in an instant, after a little practice, the absence of the smooth, slippery, healthy mucous membrane, resembling closely in feel the inside of the cheek,—the buccal mucous membrane,—and instead, the presence of the mushroom or cauliflower growth varying greatly in consistency according to age, duration, and rapidity of development. Also the doctor can determine at the same moment whether one or both of the passages of the posterior nares be obstructed.

A very simple means of diagnosis, requiring but a second or two of time and no experience, is, that if the examiner's soft finger-tip, with nail trimmed close to the quick, produce a naso-pharyngeal hemorrhage, there is surely an abnormal and excessive degree of vascularity there, calling at least for a surgical opinion. There should no more be bleeding from the pharyngeal vault swept lightly by the finger-tip than from the tongue or the buccal mucous surfaces under like circumstances. To be sure, malignant growths and certain other diseases may bleed thus upon touch, but these

are very rare by comparison, and of course also need a consultant's opinion.

But aside from any direct examination of the space behind the curtain of the soft palate, if you find a child who is a mouth-breather at most times, who snores when asleep, whose utterance tends to be thick and resembling in its faulty consonants the pronunciation caused by severe cold in the head, whose expressionless face and open mouth give him a stupid look, with even less than all these together, you can be practically sure of your diagnosis. (Of course, I assume that there is no obstruction of the nasal passages to be observed from the front.) With such a picture we commonly expect to find also enlarged faucial tonsils; and their presence accordingly adds to your certainty.

It is worth noting *en passant* that a baby who is very subject to coryza, and "snuffles" most of the time, is probably either syphilitic by inheritance or already afflicted with pharyngeal lymphoids.

In children old enough to understand and follow directions we are able to try the Valsalvian test, of closing the nostrils and trying to have them blow air through their Eustachian tubes, which any normal person can learn to do, feeling the air distend the ear-drums. Not to be able is often indicative of obstruction at the mouths of these tubes, and explains why growths here are known to be the most frequent cause of deafness; for the air pressure should in the healthy tympanum be equal upon both sides of the ear-drum.

Of course, this is a test as to the Eustachian tubes, and not merely as to the presence of vegetations in the pharynx which may be present and growing in such a way as not to press on the tubes.

Clifford Allbutt states that the very worst degrees of depressed ear-drums are found in bad cases of pharyngeal lymphoid growths, and that these children are the ones who, when stricken with diphtheria or scarlet fever, quite regularly develop suppurative otitis media and perforations.

PREVENTION AND TREATMENT.

I know of no means whereby in a catarrhal climate, such as that of the northeast American seaboard, one can be assured of success in preventing lymphoid developments. Of course, local cleanliness is of the utmost importance. The hygiene of the nose should be taught as carefully as that of the mouth, and how the

nose may with safety be cleansed; for if done improperly, as we all know, syringing is capable of causing damage to the ears, by forcing infected mucous discharges up the tubes.

One point in prevention may seem to you somewhat heterodox, and yet upon after-thought will, I believe, commend itself to you,—namely, that so far from endeavoring to break a baby of the habit of thumb-sucking, in our climate at least, it is rather to be encouraged; for it is obviously true that a thumb-sucking child cannot be mouth-breathing at the same time, and that consequently the habit promotes the natural function of the nose and nasopharynx in respiration, tending to keep these passages free. Also so far as a slight vacuum is produced in the mouth during the sucking, between the tongue and hard palate, this should tend to bring down the arch of the hard palate through atmospheric pressure from above,—that is, air within the nose. Of course, it is plain that there are certain disadvantages too; possible protrusion of the upper front teeth, for example; but I am alluding just now to nasopharyngeal affairs, and upon the score of these am gallantly defending the little ones' chief comfort in life when aggrieved and unhappy.

TREATMENT.

This is solely operative. I will waste no time over discussing palliative measures. The operation of tonsillotomy is performed in a few seconds with the guillotine of various modifications. We also need to separate by another instrument the frequently adherent pillars. In very rare cases the shape of the tonsil is flat and diffuse, rendering amputation impossible and demanding the electric or actual cautery point, again and again, for its diminution and absorption.

As to anæsthesia, I prefer the local application of a solution of eucaine B rather than cocaine, for the reason that eucaine B does not shrink the growth, for it does not contract arterioles. Cocaine *does*, very distinctly, so that one cannot remove, after use of cocaine, so much as is desired, because of this retraction due to sudden anæmia. Of course, the latter—*i.e.*, the anæmia—is a good point as to checking bleeding. However, hemorrhage is rarely excessive, and gargling with very hot water usually suffices. Not to carry this paper to greater lengths, I do not discuss the treatment of such occasional instances of further bleeding. Upon this point the reader is referred to the author's article upon "Tonsillar

Hemorrhage: Its Prevention and Treatment," in the *Medical Record*, December 17, 1892; also *New York Medical News*, May 20, 1899. It is enough to say that the operation is entirely safe.

Regarding the ablation of pharyngeal lymphoids, simple as all agree that this is in skilled hands, opinions differ widely as to the best technique. I will quote Seifert (*Die ärztliche Praxis*, 1898, xi. 81): "There is hardly another form of disease in which individual views regarding the method of operation, as well as anæsthetic to be employed, are so diverse as in adenoid vegetations." This prominent specialist prefers chloroform, only a very light seminareosis being allowed, and the child held sitting upright and leaning forward, the blood running thus out of the mouth and nose. Certain others are cruel enough to use no anæsthesia at all. Cocaine or eucaine are nearly useless because of the flow of blood which promptly washes them out of the tissues. Indeed, I know no small operation in which there is, just for an instant, such a gush of hemorrhage as that at the moment of detaching these very vascular growths; but it ceases as promptly as it comes, and is not to be feared.

Personally I do not consider it safe to give chloroform in the upright position. My own choice is for chloroform in this operation, as in most, provided the anæsthetist be skilled; otherwise ether. It is generally admitted that in childhood chloroform is safer than otherwise; and with care it may even be given during sleep, thus preventing all excitement, the child sliding from natural into anæsthetic sleep. The child is gagged and then put in Rose's position, in which the head is allowed to drop down and backward beyond the end of the table; thus the blood cannot run towards the larynx, being directed by gravity out of the nose and mouth.

As Dr. Delavan, among others, has pointed out, there is more than a theoretical danger of inhaling a blood-clot and thus choking, if the position of the child renders this possible. It is very likely that the gentlemen here present to discuss this paper may each have his own choice herein: as also regarding the preferable instrument. Gottstein's curette, a kind of ring-knife, is very safe, and is popular for this purpose; though post-nasal forceps of various curves and shapes, and a few other tools, are occasionally employed. —Löwenberg's, or Hartmann's, or Trautmann's forceps to clear out Rosenmüller's fossa, for example.

In little babies the vegetations may sometimes be found so

soft that even a strong and long finger-nail will suffice for their removal. With the flowing blood and necessity for speedy work,—for bleeding only ends with detachment of the growths,—it is hardly necessary to say that the operation is not done with mirrors and reflected light, but entirely by sense of touch; the left fore-finger guiding the action of the curette or of the forceps.

The after-treatment is very simple. There is but slight discomfort, for the operated surfaces are above and behind the hanging palate, and deglutition does not bring the food in contact with any raw part. Any ordinary sore throat often causes much more annoyance than these little people feel the next day. They usually are kept recumbent only twenty-four hours, assuming that the circulation is normal. If any unpleasant odor whatever be noted after a day or two, I gently syringe the nose with normal salt solution, warm; otherwise I do not disturb the healing surfaces which nature is at work upon.

The child must be encouraged to use the natural breathing passages now. Quite as a habit, mouth-breathing may otherwise continue, to his detriment. But *before* this operation, it is simple cruelty to demand that a mouth-breathing child shall keep his lips closed. It would mean a partial suffocation.

Does the disease recur? Very rarely, when the operation is well performed; and the same is true of a re-hypertrophy of the amputated tonsil. The cases of recurrence are so excessively rare as to be a negligible quantity, not over one per cent. at most.

IN CONCLUSION.

If we admit that the points I have made are well and truly taken,—that in sundry ways tonsillar growths, both oral and pharyngeal, are bad for the stomatological welfare of the dentists' little patients,—then it surely follows that dentists have a duty to perform in urging upon the parents of such patients the need of surgical intervention for both prevention and cure,—the removal of faucial tonsils and careful separation of all adhesions here, to avoid the narrowing of the palatine arch; the ablation of pharyngeal tonsils to prevent such an arch, and also ill-development of the whole upper jaw and faulty dentition: the removal of such growths because they prevent sufficient oxidation of the blood, also because they are culture-cabinets for microbes innumerable, continually supplying in their deep crypts or irregular interspaces

poisonous ptomaines and toxins from life and death processes of these little enemies which shoot with poisoned arrows, thus vitiating the victim's blood. In both these last ways are induced anæmia and vital weakness, whereby dentition, in common with other important physiological processes, suffers and is performed but indifferently well at best, and at worst very badly.

These things being by you made clear to the parents, and that the necessary operation is in no sense a dangerous one, I feel sure that few, indeed, among the more intelligent of these will fail to accept thankfully the means thus advised, and in later years to acknowledge in consequence a fresh debt of gratitude to that excellent friend, the conscientious and cultured family dentist.

ARMY DENTISTS.

BY MORRIS I. SCHAMBERG, D.D.S., M.D.¹

THE late war has brought to light many improvements, ay, necessities, that are requisite to a successful military campaign. Furthermore, it has proved that it is not best to await the outbreak of actual warfare before adding such necessities. Our regular army was found to be too small, various departments were proportionately so, and there was a total absence of departments that would have added materially to bring our army nearer the state of perfection. The fact that there was no department of dentistry, and that there was great need for that addition, was forcibly impressed upon the mind of Representative Hull, with the resultant clause to his bill, calling for the appointment of one hundred dentists. This bill not having been favorably acted upon as yet, allows for a free discussion of the advisability of starting this particular branch of the service.

Numerous articles have been written for and against the establishment of this department, for it must be remembered that the subject was receiving considerable attention even prior to the late agitation of military affairs.

It was, indeed, surprising to read in a recent edition of a Western dental journal, the opinion on this matter of a man hold-

¹ Late acting assistant surgeon, United States army.

ing the degree of doctor of dental surgery, and who had served as a major in the volunteer service. The writer has proceeded to set up ridiculous reasons for the proposed legislation, and then, in demolishing them, has thought that he has controverted all arguments in its favor.

The writer says, "The consideration that appeals most strongly to the profession is the opportunity given to recent graduates and young dentists with limited practice to secure remunerative employment."

He further states that "the departments of the government for war are not organized for charity or to give employment to those otherwise unable to succeed in a profession of their own choosing." These allusions that he makes to the profession trying to force its services upon the government, for the purpose of giving profitable occupation to dentists, are too sordid to deserve any notice whatsoever. While a few men might have written encouragingly about the advisability of organizing a department of dentistry for the army and navy, and in such articles had spoken of the benefits the young practitioner would derive from the adoption of such a department, no one with a reasonable amount of judgment would suppose for one moment that the government would be induced to go to such a great expense without seeing the necessity for such a measure.

Is it not natural for the profession, knowing the necessity for the proper care of the teeth and mouth, knowing the relation between the condition of the masticating organs and the general health, knowing that every soldier at some time or other requires advice or treatment for these parts,—is it not natural that it should be disposed to encourage the adoption of the army and navy dental surgeon? It is the profession's duty to depict its possibilities in that direction, to show its necessity, and to suggest the proper procedure for the establishment of an army dental department.

While serving at Chickamauga, many soldiers came to me for the extraction of teeth, and many more could have been relieved had I had proper filling-materials and instruments with me. Nothing tends to bring any condition in the mouth to a crisis as does the life that a soldier leads in the field. Exposed to all kinds of weather, run down through fatigue, dependent upon rations which, as a rule, put to a severe test the masticating organs, and non-painstaking as to the hygiene of his mouth by reason of this

peculiar life, the soldier proves to be the most needy consultant of the dentist.

During six and one-half months of active service in Porto Rico, many cases of interest from a dental stand-point presented themselves to me. Rapidly growing alveolar abscesses were of frequent occurrence, and one case of rather extensive necrosis of the inferior maxilla called for operation. The above-mentioned cases, together with numerous conditions of the mucous membrane which called for treatment, such as ulcerative stomatitis, spongy gums, chancre of the tongue, etc., are proof of the fact that the vicissitudes to which the soldier is subjected render him an easy victim to some of the more serious oral affections.

The question is often asked, Cannot the physician do the necessary extraction of teeth? You might just as well ask, Cannot a dentist treat and confine a pregnant woman? Both have about an equal knowledge of the duty they are called upon to perform, and in both instances does the patient suffer the uncertainty of success.

Again the query is put, Why should not the soldier be referred, as in the past, to the dentist in the neighboring town or city; and again we might add, for the same reason that he is not thrown upon his own resources and sent to a physician of the adjacent districts when medical attention is needed. But the opposition says, the medical man is needed in time of war and the dental man is not, for he would be unable on account of the manœuvres of war to do other than extracting. In answer, I will take the liberty of stating that the dentist in times of peace would be much busier than the physician in preparing the soldier for the test of war. There is scarcely an individual that at some time does not require the services of a dentist. One can then realize how much work would devolve upon a dentist in care of a regiment of a thousand men.

Not alone the scientific thinker, but the most practical practitioner, attributes a large proportion of gastric and intestinal disorders to defective mastication of food. During the late war, this was found to be the most troublesome class of diseases.

Our Western friend assumes that the standard of the dental man will necessarily be a poor one. The stringent examinations given in all the departments of the government service will preclude the possibility of any improperly trained dentists getting into the service. Should a man prove to be unworthy of the position,

he must expect to be treated as in other walks of life, with little consideration. A conscientious man of gentlemanly and dignified instincts entering the army with but "forceps rampant for a collar ornament" will carry with him all the respect that any man of character will in other departments, and I predict that if he be a man of ability, as he necessarily should be, the officers and their families will supply a *not* very small part of his practice.

True, the army dentist will share with other members of the service some leisure moments. These can be advantageously spent in acquainting himself with principles of surgery, and in consequence of this advanced knowledge the army dentist will be able to lend much assistance upon the battle-field. There are many other duties which he might be called upon to perform in common with the surgeon, such as the instruction of the hospital corps in drill regulations and points of discipline.

As the medical men are encouraged to perform original research work and thereby advance the standing of their profession, so would the dental men have ample opportunity to collect and report interesting statistics as to the wearing qualities of certain filling-materials, the advantage of one alloy or cement over others, etc. Their cases would be constantly before them, and the uniform employment throughout the service of certain preparations would afford most valuable information as to their efficiency. So, while a man may not be tied down to actual office practice the entire day, he will have many other duties to perform which will keep him busy.

There are a few points about the establishment of an army dental department that suggest themselves to me. One is that the department should, without doubt, be in close relation with, if not directly under, the jurisdiction of the medical department. Dentists should be taken into the service with the rank of second lieutenant, giving an opportunity to the most worthy to rise by promotion to the position of captain or even major. Dentists who hold the degree of medicine should be given the preference of appointment, in that they can be called upon in an emergency to perform the duties of a surgeon.

THE POWER OF ADAPTATION TO ENVIRONMENT AS SHOWN BY CELLS AND TISSUES IN VARIOUS PATHOLOGICAL PROCESSES.¹

BY FRANK A. DELABARRE, D.D.S., M.D., BOSTON, MASS.

THE wonderful mechanism of the human body, with its intricate and interdependent machinery nourished and actuated to motion by the delicate processes of physiological action of the different systems, is a marvellous thing. The manifestations of physiological activity lose half their impressiveness in their very familiarity. Anatomy, to the layman particularly, does not seem very wonderful because the functions of the different muscles and organs are so commonplace. We breathe and think nothing of it. Our heart keeps on beating day and night, year in and year out, through all the varying mental emotions that engross our attention. The nervous system, the process of assimilation, distribution, and excretion, and the circulatory system, with its tremendous network of veins and arteries, all reveal the wonderful power and perfection exemplified in their interdependent and harmonious work.

Pathology introduces abnormal conditions and imposes unusual demands upon the system, stimulating the cells or organs to increased activity or diminishing their normal action. Under such circumstances is shown the power of adaptation to environment, the compensatory action striving to preserve the balance at the normal physiological point.

Man can build a locomotive with intricate machinery and marvellous power, and yet he cannot instil into that product of his genius the ability to repair a weak spot in the boiler or to mend a broken crank-pin. It is this attribute of nature that is even more surprising than the physiological functions. The fact that nature can recognize the existence of an abnormal condition and then take steps to eliminate it, or, failing in that, to adapt herself to it, is the central idea that is emphasized in this paper.

Inflammation is the accompaniment of almost all pathological processes, and to it one must look for an explanation of the methods

¹ Read before the American Academy of Dental Science, Boston, January 4, 1899.

nature pursues in effecting a partial or complete restoration to normal conditions when circumstances impair the usefulness of any part.

To define it, "Inflammation is the phagocytic reaction of the organism to the action of an irritant." This power of enveloping and disposing of foreign bodies is possessed by the leucocytes, all connective tissue cells, and some epithelial cells. These cells are the active ones in combating disease and injury.

Irritation being present, there first occurs a change in the vascular system. After a momentary contraction there is a dilatation of the blood-vessels with slowing of the current and passage of leucocytes through the walls, followed by a diapedesis of the red blood-corpuscles and an exudate of plasma through the enlarged stomata. The connective tissue cells and slumbering cells migrate to the scene of activity and proliferate. The chemotactic action of these cells is directed against foreign bodies and, as their power is less or greater than the action of the irritant, degeneration or regeneration occurs.

Degeneration results in destruction of the part or whole, and its process does not come under consideration. Regeneration is accomplished either by resolution, or the absorption of the exudate by the lymphatics and dissolution of the irritant, or by suppuration,—if the lesion is an aggravated one,—when the effete matter is thrown off in the form of pus. If these means fail, organization or the permanent isolation of the irritant is attempted. Cicatrization follows with the evolution of round connective tissue cells into new tissue and the development of a new circulatory system and repair of the nerve-fibres.

Turning now to a consideration of some of the few examples among the many that could be cited on this subject as peculiarly showing this latent power of nature, take first the action of the lachrymal glands when the eye is irritated. The normal secretion is tremendously increased, which, with the involuntary movements of the lid, tends to move the foreign body towards the inner canthus and off from the sensitive cornea.

When, by caries, fracture, or abrasion, the dental pulp becomes irritated by thermal changes or acid secretions, nervous impulses start the odontoblasts to making a deposition of additional layers of dentine to protect the vital portion of the tooth.

Irritation set up by moving the teeth induces an absorption of

the bony alveolus by the osteoclasts and a development of new bone in the vacated space through the agency of the osteoblasts.

In a case of compound, comminuted fracture inflammation results and the various changes take place, the first effort towards recovery being made in the soft tissues. The exudate and useless portions of bone are thrown off by suppuration. The irritation of the periosteum and medulla excites a proliferation of the osteogenetic cells, and the ring and pin callus are formed for the purpose of keeping the parts immovable during the next stage, when the true bony union takes place between the ends of the fragments. This being accomplished the osteoclasts absorb the now useless natural splints and the bone is fully repaired.

In ranula, where the calculus is too large to pass through the duct, obstruction occurs and inflammation results in an abscess and the stone escapes through the fistula.

Compensation for loss or impairment of a part cannot better be illustrated than by citing the hypertrophy of the left ventricle of the heart when aortic stenosis or arterio-capillary fibrosis renders more difficult the keeping up of the circulation.

When an artery is tied there results a diminished supply of blood to the part affected, but, as Black says, the nerves soon take cognizance of the fact that the tissues are not getting their proper nutrition and vasomotor impulses stimulate an increased supply through the anastomosing branches.

When an artery is cut and its branches towards the periphery become useless, or when new tissue is forming, there spring from the existing blood-vessels buds which elongate into fibres and unite with each other, finally developing into capillaries as corpuscles are forced through them.

One of the best examples of organization is the isolation of a bullet in the tissues by surrounding it with a sheath of dense fibrous tissue, rendering its presence harmless. Two physiological actions are finely illustrative of the compensative power of nature. One is the absorption of the roots of the temporary teeth and their retention until the permanent ones are about ready to come through. The other is the multiplication in size and number of the cells of the uterus during pregnancy and the return to normal after delivery.

Every action has its purpose and explanation, and close minute study reveals the secret workings of nature in her efforts to rebuild

and repair the damage done by accident and disease. She works with reason and consistency, and whatever aid is offered must be given with the same reason and consistency and with a thorough knowledge of the pathological actions of cells and tissues.

SOME SUGGESTIONS IN REGARD TO DENTAL EXAMINATIONS IN THE UNITED STATES.¹

BY WALDO E. ROYCE, D.D.S., TUNBRIDGE WELLS, ENGLAND.

A SUBJECT which has received so much of the best thought of our profession cannot be approached without a feeling of diffidence. Nothing short of the almost universal outcry against the system—or, rather, want of system—which now prevails in the United States in respect to dental education and examinations would tempt me to undertake so delicate a task. The thought has suggested itself, however, that, possibly, years of foreign residence may aid me in my effort.

Every thoughtful graduate of an American dental school looks with chagrin upon the lack of acknowledgment which is accorded his degree. He need not be an old man in order to remember the time when the degree of D.D.S. from a leading school was a professional passport in any part of the world. Now the doors of all Europe are shut against it; and, what is worse, it is not acknowledged in the very State where it was granted.

The American operator is able to give practical demonstration of the fact that, in manipulative ability, he still stands alone and supreme. With equal ease it can be proved that wherever conservative dentistry is practised nine-tenths of the methods and instruments used were conceived by Americans. American dental literature reaches all parts of Europe.

Notwithstanding this, all foreign states, and many of our own States, have made laws "to protect the public" from the ignorance of men who perform these operations, who conceive methods and appliances, or who edit journals and compile text-books that are gladly accepted the world over. All, so far as they are able to comprehend and use to their own advantage, accept the result of the

¹ Read before the American Dental Club, London, England.

thought, research, and ingenuity of the American dentist, and then, to show their gratitude, shut the door in his face.

Is, then, the creator so inferior to the works of his own creation? Have the teachers who are represented by the Association of Dental Faculties so betrayed their trust that they have brought disgrace upon themselves and upon the degree which they confer?

The men who edit our journals are nearly all teachers in our schools. Almost every prominent operator in the country is, more or less, directly connected with some school. Are all these men cheats and knaves? No fair-minded man believes this.

The trouble is that, unlike a gold filling, an ingenious instrument, or a printed journal, the work of the teacher cannot be seen, and at present there is no proper means of judging it.

Give our best dental schools a test by which they can be compared with each other, and with the schools of Europe, and they will soon restore their degree to the place which it once held and which it still deserves.

It must be admitted that all examinations are imperfect, but they are the best test we have of fitness, and, until we have something better, must be accepted. Being accepted, they should be made as perfect as possible. The student who has properly completed his curriculum has a right to an examination which shall be final and universally accepted. In all European countries this fact is recognized. The professional examinations are, more or less, directly under the supervision of the government, and the license which is issued bearing government sanction is of corresponding value. Of course, it is more difficult to arrange a government examination in a country made up of a large number of independent states, but this difficulty is not insurmountable.

When Uncle Sam wishes officers for his army and navy, he finds a way to look after their education. If it is legal for him to educate them, he surely can look to the examinations of dentists, lawyers, surgeons, engineers, etc., all of whom he has to employ.

This plan need not in any way interfere with State rights. If the several States are assured that the possessor of the national degree has passed an examination equal to, and probably more severe than, their own, they will readily amend their laws so as to exempt the holder of that degree from further examination.

It cannot be expected that all the States will at once bring their standard of requirements up to that of the government ex-

amination. Each one will have a right to fix any standard it may like, but it should be understood, both at home and abroad, that no degree, except that granted by the government, has any value outside the State where it was obtained. Soon the States would learn the value of the government examination, and would adopt its diploma as the only recognized qualification. A government examination would, I believe, also settle that vexed question, the undue increase of dental schools.

The Association of Dental Faculties has done a noble work in raising the standard of dental education in America, and it is worthy of all praise, but even in this Association the most progressive members complain that their advance is retarded by the less ambitious ones. Now, they can only say this *should* be required. Make them government examiners, and they will be able to say this *is* required.

Let any reasonable standard be established by a government board, and every school worthy of the name will be anxious to have its curriculum acknowledged. Each school will realize that to succeed it must be acknowledged, and that the only way to obtain students is to so educate them that they shall be able to pass the government examination. In fact, the examination would be of as much value in testing the schools as in testing the scholars. This must result in a healthy, friendly rivalry among the better class of schools and in the extermination of all others.

A GOVERNMENT BOARD OF DENTAL EXAMINERS.

It is evident that the best interests of the dental profession, both at home and abroad, demand that the United States government should, through its proper agents, appoint a Board of Dental Examiners, and when such board is appointed the members should become United States officials, and should have power to grant diplomas in the name of the United States government.

A method of appointment should be conceived by which the best men in the profession shall be chosen as examiners, and the greatest care should be exercised that the office be placed beyond the reach of party or politicians.

The board should consist of at least five members (better ten), the first members to be appointed to act for one, two, three, four, and five years. At the end of each year a new member (or members) should be appointed to take the place of the retiring member (or

members), to act for five years, thus making the work of the board practically continuous.

After five years no one should be eligible for appointment as a member of the examining board who has not passed the examination of the board.

To avoid confusion and an unnecessary increase of degrees, the successful candidate should be allowed to add the letter N (National) to his degree. The letters D.D.S.N. would show that a man had, in addition to taking his degree in a dental college, passed the government examination.

To falsely use the letters D.D.S.N. should be an indictable offence against the United States government, and should be punished with a heavy penalty.

The standard of requirements, both preliminary and professional, and the severity of the examination should at least equal those of the most exacting State in the Union. A schedule of these requirements should be published, together with a list of the dental schools whose curriculum is, for the time being, acknowledged by the board, and whose graduates are allowed to present themselves for examination.

This list of colleges should be revised by the board each year.

The board should require of each candidate for examination,—

First. A certificate of having passed the required preliminary examination. In case the candidate is not an American citizen, he should be required to produce a certificate of having passed the preliminary dental examination in his native country, in addition to such other certificates as the board may see fit to require.

Second. A diploma from a dental school which was at the time of granting the diploma recognized by the board.

Third. Each candidate should be required to sign an agreement that if he shall be granted the degree of the board, he will not advertise, or indulge in other unprofessional practice; that he received his degree upon this condition, and that he will forfeit his degree and surrender his diploma upon its being proved that he has broken this agreement.

Any person who holds the diploma of a reputable dental or medical school, granted before the formation of the Association of Dental Faculties, or who holds the diploma of a dental school, which diploma was granted before the formation of this board, and which school was at the time of granting said diploma a member of

the Association of Dental Faculties, should, provided he can give proof of having been in *bona-fide* practice of dentistry within the limits of the United States for a period of not less than three years subsequent to receiving his diploma, be exempt from producing other certificates. The board should have no power to make further exemption than that above named, and the degree should in no case be granted as an honorary degree.

All examinations should be conducted in the English language and without interpreters.

In drawing this outline for the formation of a government examination, I do not suppose that it is perfect or complete. My object is to set the ball rolling in what I believe to be the right direction. This matter is too important and too difficult to be undertaken by one man. Time should be taken to enlist the hearty and active support of the best talent in the profession. With this help, a plan should be so perfectly conceived and so thoroughly worked out that when we approach the government and ask that an examining board be appointed, we shall know exactly what we wish; and when the board is formed, its instructions should be so explicit that everything, from the first, shall work smoothly and without the need of alteration.

At a meeting of "The American Dental Club of London, held April 3, 1899, it was, on motion, adopted,—

"That a hearty vote of thanks be accorded Dr. Royce for his paper proposing a federal diploma in the United States of America; also for the time and trouble he has expended in securing such eminent legal opinion as to the constitutionality of the proposition. And at the same time it was recommended that the paper, with counsel's opinion appended, be sent to the different dental journals for simultaneous publication."

The following legal opinions were given upon the foregoing paper:

OPINION OF MR. COGSWELL.

"I am asked whether an act of Congress establishing a board of examiners in dental science, with power to issue diplomas, would be constitutional.

"This question divides itself into two parts, or presents itself in two aspects:

"If by it is meant to inquire whether Congress would have the

power to create such board and to require all persons desiring to follow the profession of dentistry in the United States to submit to such examination and to prohibit the practice of dentistry by persons not possessing such diplomas, I answer, No. Powers of Congress are conferred by Section 8 of Article I. of the Constitution, and the powers not delegated to Congress by the Constitution are reserved to the States or the people by the Tenth Amendment, adopted very shortly after the Constitution went into effect. It has been uniformly held that Congress can only exercise the powers thus designated by Section 8, or such as are reasonably necessary to carry them into effect. It is not necessary to enumerate those powers; it is sufficient to say that the establishment of a board of examiners in dental, medical, legal, or any other science, with the exclusive power to grant diplomas authorizing the holders thereof to practise their professions, is clearly not within the power thus conferred upon Congress. The practice of the several States is in conformity with this opinion, and the granting of diplomas in the various sciences, with the right to practise the corresponding professions, has been uniformly exercised by the respective States.

“If by this question it is meant to ask whether Congress has the power to create such a board as is described, with power to grant diplomas, leaving it entirely optional with any person to take such examination and not attempting to give to such examinations or diplomas any exclusive right, making them, so to speak, honorary, then I have no doubt that Congress has such power and may create such a board. I repeat that there may be no misapprehension, that such examinations would be purely voluntary and such diplomas purely honorary.

“It would of course be within the competency of the several States to make the obtaining of such diploma a condition precedent to the practice of dental science in such States, respectively, but they would then derive all their validity from the action of the State and not from that of Congress.

“WILLIAM F. COGSWELL.”

OPINION OF MR. BURNS.

“I have carefully examined your paper entitled ‘Some Suggestions in regard to Dental Examiners in the United States,’ and the plan therein outlined for a government board of Dental Examiners. I think Congress has a right under the Constitution to establish a

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Board of Dental Examiners and to authorize them to hold examinations and issue diplomas in the name of the United States government. Congress would not, however, have the power to make these examinations compulsory or to require the different States to recognize the diplomas granted by such board, but the power would remain in the different States to prescribe such examinations under State authority as might be deemed proper by the State Legislatures. Congress could provide that dentists must take the national examination to make them eligible for service in the army and navy or to entitle them to practise in the Territories of the United States.

“Respectfully yours,

“JOHN D. BURNS.”

Abstracts and Translations.

SOME OLD AND NEW THEORIES OF CALCIFICATION.¹

BY MR. J. F. BENNETT, LONDON, ENGLAND.

THE paper of the evening was by Mr. J. F. Bennett, on “Some Old and New Theories of Calcification.” Mr. Bennett passed in review the researches of George Rainey and of Professor Harting, of Utrecht, forty years ago, though the work of the latter did not become known in England until a much later date. Both those investigators believed they were able to reproduce artificially certain of the calcareous structures found in the animal kingdom, such as shells, spines, etc., and that their form in these tissues was largely due to the colloid solution in which they were deposited. The experiments leading to the enunciation of their views were detailed. The author dissented from the application of their theories to the teeth and bones, his objections being mainly based on the percentage composition of enamel, dentine, and bone,—viz., calcium phosphate 89.82 per cent., calcium carbonate 4.38 per cent., in one hundred parts of enamel. In one hundred parts of dentine the figures were: calcium phosphate 66.7 per cent., calcium carbonate

¹ Abstract of a paper read before the “Odontological Society of Great Britain,” with discussion thereon.

3.36 per cent. Mr. Bennett proceeded to quote from one of Professor Harting's experiments, showing that phosphate of lime forming in a colloid in somewhat the same proportions as in bone, dentine, or enamel, could not assume the form of calcospherites. Harting's view was borne out by the experiments of Dr. Ord, particularly that depositing lime-salts in coagulated albumen at different temperatures in the proportions found in bone, when an even, continuous deposit was produced, without spheres. Mr. Bennett thought that Rainey's experiments with phosphates were disappointing, and particularized in what respects. The author thought experiment did not favor the globular form as a possible arrangement of the lime-salts in the teeth. He quoted from Tomes's great work on the proportions of the salts in bone and teeth, pointing out the discrepancies in the estimates of carbonates. He gave a digest of various opinions on calcospherites, in which idea there has been another "boom." But there remained the difficult question as to why calcospherites did not more often form in other albuminous constituents of the body,—i.e., salivary glands, atheromatous patches, calcifying tubercle, etc. Mr. Bennett then dealt with Dr. Sims Woodhead's views on bone formation, as set forth in his paper before the Society in 1892. Dr. Woodhead showed there was always an increased amount of carbonic acid in the fluid near active cells, and phosphate and carbonate of lime were found, the latter small in quantity. Near dead membranes, if these salts were removed by dialysis they remained stable and might be deposited at once; but if kept in contact with the phosphoric acid of the blood and the alkaline phosphates they were redissolved.

The matrix might be looked upon as inert or dead organic matter, corresponding to the membrane through which dialysis occurred, such membrane (the matrix) serving to separate the lime-salts prepared in its neighborhood by the carbonic acid cells. The carbonic acid caused a throwing down of phosphate of lime, with a small proportion of lime, in which the phosphoric acid was generally replaced by carbonic acid. Professor Harting's union of lime-salts with albumen in calcoglobulin might have no connection with bone or dentine. The powerful influence of carbonic acid in determining calcification seemed to be more than merely holding the salts in solution and precipitating them on its removal. Mr. Bennett thought the union and molecular form of carbonate of lime which

Harting found in albumen might be attributable to some action of free carbonic acid evolved in the colloid solutions, causing a more intimate blending and modification of both organic and inorganic constituents. They had to learn not only how the lime-salts were deposited, but how they were prevented from depositing in other parts. Was carbonic acid the inhibitory influence? He thought Dr. Woodhead's views suggested a clearer idea of the cause of calcified structures in the ovary and other strange situations.

Mr. H. Lloyd Williams said the question which seemed to him extraordinary was that the basic substances of enamel and dentine respectively seemed totally different from each other. He asked Mr. Bennett whether carbonic acid had any influence in the matter. Apparently it did not greatly differ originally, because physiologically it could not be understood that there was any great difference between an odontoblast and an animal cell; yet the basic substance of enamel seemed to materially differ from that of dentine.

Mr. Storer Bennett said physiological views were altered about once every seven years, and so it was, apparently, with many of the teachings held a few years ago to be quite accurate. When he was a student the statement was not questioned that dentine was calcified by the deposition of calcospheroids, which fused into a solid substance, creating the matrix between the dentinal fibrils. Nobody seemed to have verified such a statement by actual observation. Even Mr. Tomes in his lectures years ago said the recognized view was so and so, but he did not say he had seen it, and quoted no observer who had. Some time ago he had urged that younger practitioners should conduct original investigations, and the older members of the profession might benefit by an attempt to disprove or verify the current text-book statements. The actual mode of formation of dentine would be an interesting field for investigation, which would reward the worker.

Mr. Ashley Barrett asked Mr. Bennett if he could say why the layer of dentine first calcified should assume that particular shape, —*i.e.*, globular spaces with convex boundaries. Why the granular layer should be as it was found was to him a difficult question.

The President asked Mr. Bennett his opinion as to the function of the cell, and the importance of the action of the cell in cases of calcification. He presumed a special cell was engaged in the production of dentine; also a special cell was engaged in the calcification of enamel. He questioned whether there were any cells con-

nected with the calcification which occurred in the structure of the pulp as met with.

Mr. Brunton said he was not familiar with the question, but probably a little light might be thrown upon the deposition of lime by observing the fresh-water snail, for if the body of one were taken out of its shell and dropped into water, it would be found, in a few hours, that this fresh-water snail had built itself a new house.

Mr. J. F. Bennett, in reply, thought his paper had fallen on unfortunate times as regards discussion. He invited members to read his paper. When a man like Dr. Woodhead came to the meeting, he sometimes propounded a new theory which they had been in the habit of taking as gospel. Then a new theory was advanced, was perhaps not much noticed, and they found themselves holding views the basis of which they had never troubled to properly examine. Every one would respect Mr. Tomes, who was a master of the subjects he wrote and talked on. Mr. Tomes had gone into the question as thoroughly as Rainey, and if he found grounds to believe in the possibility of Rainey's theory in any form, well and good. Mr. Bennett invited the members, especially the junior ones, to read a few of the treatises, for investigation might result. The functions of the cells, of course, might be considered from two points of view. They might have a function like the odontoblast, or the mesoblast, or the osteoblasts, or in forming the matrix. The animal portion of the structure also has a part to play in the laying down of the cells as in the mesoblast, certainly in the osteoblast, and probably in the odontoblast. A special action of the cell which Dr. Woodhead dwelt upon was the new idea that it was a carrier of carbonic acid. It had long been known that carbonic acid held in solution the phosphates of lime circulating in the blood, and by passing off in vapors, or in some other way, the lime-salts were precipitated. It was well known that saliva contained phosphate of lime which had been in the mouth in soluble form, but as soon as the carbonic acid passed in, it was precipitated in the form of tartar on the teeth. Dr. Woodhead suggested that the action of carbonic acid was far more difficult: it was continually holding and releasing the phosphate of lime, performing that process repeatedly in the blood. But its special function was to hold the carbonic acid and retain command over the lime-salts, either to make them soluble or the reverse. Therefore, when the connective tissue corpuscles or leucocytes were round a tuberculous nodule in vast quantities, in order

to isolate the bacteria, the cells carried carbonic acid to some which were really dead in front of them, and so deposited the lime. Mr. Barrett had spoken of the margin of early formed dentine. He did not quite know whether he meant the convexities which were found at the very margin, something like a series of waves. That had been explained by some as representing the little points where the enamel prisms fixed against the dentine, but that was not a very adequate explanation. The granular layer was supposed to be a mere broken and interglobular dentine. The point he wished to bring out in his paper was that, although they were very eager to find out what interglobular dentine was,—which was unquestionably the key to the structure of dentine,—they were not obliged to take Rainey's theory. If they thought it was due to calcospheroids, it was curious that nobody had been able to evolve a calcospheroid out of a composition of dentine and bone, and that it was only a product which could be formed by carbonate of lime—not phosphate. Mr. Brunton had alluded to the fresh-water snail and its new mantle secreting in a short space of time. This was the case with the lobster and many other animals. He did not dispute that Rainey was wrong regarding gastropods and that kind of thing, because it was known that the shell was formed of carbonate of lime. Artificial spheroids could be formed in carbonate of lime. The difficulty occurred where phosphate of lime had to be dealt with.—*Journal of the British Dental Association.*

Reports of Society Meetings.

AMERICAN ACADEMY OF DENTAL SCIENCE.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Wednesday evening, January 4, 1899, at six o'clock.

A paper was read by Frank A. Delabarre, D.D.S., M.D., of Boston, entitled "The Power of Adaptation to Environment as shown by Cells and Tissues in Various Pathological Processes."

(For Dr. Delabarre's paper, see page 359.)

DISCUSSION.

Dr. Eames.—The ideas expressed in regard to the wonderfulness of pathological action are in line with the thoughts which came to me in my study of pathology. The essayist referred to the chemotactic action of the blood-cells, the white corpuscles having the power of moving to any point to attack a foreign substance in the blood, such as pyogenic bacteria and poisonous substances, and, what has not been mentioned, the fact that when a substance, such as pulverized glass, which has no pyogenic action, is inserted into the circulation, these white blood-cells are not attracted to it and yet they are attracted to other foreign substances which are injurious. It is that power to discriminate between the harmless and the harmful substance which strikes me as being a very wonderful thing.

Dr. Williams.—I was pleased with the paper, which appeared to me to be very concise and to very well represent the pathological side of medicine and surgery. The essayist's statement of the impression which the study of pathology had made upon him reminded me of the impression it made on a very distinguished old physician of Boston, who is now dead, who, after long study, came to the conclusion that disease was an institution of nature; that it was foreordained, as a part of the plan of creation. I suggested to him that there was another way of looking at it, which I believed to be the correct way, and that is, that in the plan of creation the provisions made for the continuance of life were so strongly fixed in the way of health as to give laws to, and control disease, and to attempt to repair injury. I think if we study the action of the human system under pathological conditions and in cases of wounds and fractures, we will conclude the plan of creation was along the line of health, and is so firmly fixed along that line as to resist disease or to repair injury to a degree which in some cases is marvellous.

Dr. Brackett.—I came in too late to hear all of the paper. That portion which I did hear I very greatly admired, as the idea which was made prominent in the paper is an idea that has impressed me very much for many years. It is an old saying, quoted I think from Young, that "the undevout astronomer is mad." This, being expressed in other words, means, if my interpretation is correct, that any man who considers the stupendous scheme of the universe,

who studies the motions of the heavenly bodies, the grandeur and awful immensity of space, who investigates all these laws of time, motion, and position without being impressed with the nobility of the whole scheme, must be very dull and dwarfed in intellect. And since so much of the study of recent years of medical and scientific men has been in the world of small things, and with the microscope, it has seemed to me that the man who has given any attention to anything of this field of human investigation without being impressed with the beauty and the nobility of the plan of creation must be very unimpressible. Just as truly as astronomers have for generations been impressed with the grandeur and immensity of the plan of creation as shown in the existence, position, and motion of the innumerable heavenly bodies, just so truly has the thoughtful man of recent years been impressed with the wonderfulness and importance of minute things in all that goes to make up a world in its broadest sense. There is in all of that material that which should inspire our liveliest appreciation and our worthiest feelings; and it should be an inspiration for all of us as human individuals, occupying legitimately a place on this earth, and having a part assigned to us, to do our part with as much faithfulness and promptness and decisiveness as does the white corpuscle, or as does the principle of gravitation, or as does the shining of the sun, or the law of combustion or chemical action, or any of the physical laws which act with unerring certainty. The consideration of all these things should be an example and inspiration to us in the performance of those duties which are so plainly before us.

Dr. Delabarre.—The chemotactic action which is exhibited by the different cells of the body is similar to a chemical action, as it is both positive and negative; that is to say, the white blood-corpuscles have the peculiarity of being attracted by certain substances, and they are repelled by other substances. They are attracted by bacteria, alkaloids, and albuminates, and make a very strong effort to overcome their effects.

DISCUSSION ON PORCELAIN INLAYS.

Dr. Hamillon.—While I have always been interested in porcelain inlays since seeing some remarkably good ones done by Dr. Ames, of Providence, nearly twenty years ago, yet I have done but few of them, and am here to-night to show the Jenkins apparatus

which Dr. Abbot, of Berlin, presented to Dr. Hadley and myself, rather than as an expert in the work.

From the dentist's stand-point inlay work has not before been brought to the degree of perfection that most of our other operations have been, and so has been unsatisfactory, but it has, as a rule, pleased the patients. It is remarkable how well a poor inlay looks at a distance of a few feet.

The Jenkins system consists of a new body, low fusing but of great strength and sharp edges, and a great variety of good colors. Then there is a very neat furnace, all beautifully gotten up so that the inlays can be made in the operating-room.

The impressions of the cavity are taken in No. 30 or No. 40 gold-foil and embedded in a paste of powdered asbestos. After drying this investment, the body, mixed with absolute alcohol, is put in the matrix and fired. For small inlays more body is added and fired a second time, and for a large one a third firing is necessary. This should bring the inlay to the proper contour so that no surface grinding is necessary, although the body takes a good polish.

Dr. Williams.—I would like to inquire whether this body is fused at a higher or lower temperature than the Downie?

Dr. Hamilton.—The Downie is quite a degree higher. You can use the Jenkins body in a Downie furnace.

Dr. Werner.—How much shrinkage is there in the average case in the way you have up to the present learned to manipulate it?

Dr. Hamilton.—The shrinkage of the first firing is considerable; then the body added for the second firing fills the crevice at the edge. The third firing gives contour.

Dr. Werner.—How do you add the extra body?

Dr. Hamilton.—Put on the body in paste form with a small brush or a spatula. You do not disturb the inlay after the first firing. It does not pull away from the matrix, so that your fit is very exact.

Dr. Wilson.—I have lately seen a patient just from Dr. Jenkins's office, and have had the opportunity of seeing some very handsome inlay work. It must take a great deal of time and patience to bring about the results obtained by Dr. Jenkins, and it would seem to me, in many cases where an exact impression of the tooth could be taken, much time would be saved, more especially in cavities running beyond the margin of the gum. Dr. Jenkins inserts a good many inlays in this class of cavities very skilfully,

and I am curious to see how long they will last. I think the statement has been made that this body is harder than the teeth furnished by the Dental Depots. This I do not think is possible, although I have no doubt it is sufficiently strong for practical purposes in doing ordinary inlay work.

Dr. Briggs.—I have always been very much interested in porcelain fillings, and some time ago I had occasion to do some work for a patient who, like the one referred to by Dr. Wilson, had been in Dr. Jenkins's hands. I was very much struck not only with the beauty and match in color of these fillings, but with the fit in inaccessible places, which I realized I had very much difficulty in trying to get with such methods and materials as came within my knowledge. I wrote to Dr. Jenkins, complimenting him on the result he had obtained and asking him how he did it. In reply I got a letter outlining this process of his, and also stating at that time that he was very sorry that he could not supply any to anybody in this country. About the same time I received a circular from the manufacturers describing this process. Through the kindness of Dr. Hamilton, who let me have some of the enamel, I have been enabled to do a little experimenting in connection with this subject, and my summing up of his outfit and process, as it appears to me, would be something like this: That he has given us the ability, by using this thin gold, to make a matrix of the cavity which is practically perfect; and he has given us an enamel that has excellent color and that flows in this matrix without destroying it, and by repeated fusing can be made to fit the matrix perfectly. If one makes these other enamels or bodies in a platinum matrix, they adhere to the platinum, and many times your filling is spoiled, but with the Jenkins enamel this gold matrix is readily removed and you have a perfect filling. This may be due partly to the technique, the mechanical part, but a great deal of it comes through the make-up of his enamel. You cannot do it with a high-fusing body, because the gold melts before the body is biscuit. You cannot do it with the low-fusing bodies that we have in the market, because when they are done they do not look like anything that was ever in the human mouth. I deplore the fact that I cannot get hold of the Jenkins enamel, even if I could not get the apparatus, for I feel that if I had that enamel I could secure very good results by using some furnace which was not quite so dainty as Dr. Jenkins's. I wish he would publish of what the enamel is composed.

In regard to taking impressions for porcelain fillings referred to by Dr. Wilson, I have done a great many in that way, and have had the fillings baked by others,—Dr. Moffatt has made some for me. Still you never get an impression of a cavity that is perfect. When the inlays come to you they have to be touched up and ground, and I have never been able to get as perfect a fit as I would like. As far as the strength of these enamels is concerned, they seem to me exceedingly strong. I think Dr. Jenkins has found something that is very useful to us.

Dr. Daly.—I have read about Dr. Jenkins's method of making and inserting porcelain fillings with a great deal of interest. I regretted that the outfit was not to be obtained at once, and I congratulate those gentlemen who have been fortunate enough to secure one.

The method which I employ is one that I do not think will be of any interest to you, as it is very crude, for I have been disappointed in the Downie furnace with the rest of you, because after burnishing my platinum-foil for the matrix, and placing in that the body in anticipation of getting a filling that will be perfect in color, when it is fired many times you cannot help feeling that it is "all a delusion and a snare," for instead of your perfect color you oftentimes get a translucent bit of porcelain more like little drops of glass. After getting this result and cracking it a dozen times or so, I have finally returned to the method by which I know it can certainly be done provided time enough be taken, which is by taking a porcelain tooth of the right color and grinding it down to fit,—a long, tedious piece of work. But if your assistant can do that for you, it will save considerable time, and I have had the best and most certain results by that method of any that I have tried. We all have to deal with atrophied spots on the teeth,—those tiny cavities and fissures extending across from mesial to distal surface,—and by taking the tiny pieces of porcelain that the White Company furnishes and one of the burs the circumference of which corresponds to the little disks of porcelain, you can grind down to fit accurately these tips of porcelain or porcelain rods which correspond exactly to the colors of the teeth. In making the larger porcelain fillings I burnish into the cavity a matrix of the thinnest platinum-foil that can be had; then, carefully withdrawing it, I turn Melotte's metal into that, and then taking a White or an Ash tooth, of the proper color, cement a piece of the porcelain of that

tooth onto the metal and then grind,—and it is a grind to shape it to place, and then you can cement your inlay in place. I think many lay too much stress on How shall I cement that little piece of enamel to place? It doesn't require anything but a good cement to cement it to place with ease and accuracy.

Dr. Bert Russell, of Keene, N. H., showed at a dental meeting his method of putting in inlays,—and it was with the inlay rods, by the way.

These porcelain rods are cemented into a porte-polisher—sticky wax will answer; then, with the aid of the engine, grind to place and then cement to place and polish. It requires care and skill in dressing these little pieces of rod not to disturb the enamel, and it takes time to do it, but it can be done; it is done every day by him, and I adopt that same method without disturbing the enamel or injuring it in any way, and yet I can say that they do not break away from the cement very often. Once or twice I have had them dislodged by the aid of the tooth-brush, but it is very seldom that they give way. At the same time, I contend that all inlays, and not only inlays but gold fillings and crowns, should be examined from time to time with great care and painstaking to see that they have not failed. We know that frequently gold fillings fail, no matter how nicely put in, and we have also seen crowns give out because the best cement that we knew of had washed out. So we must not be surprised if inlays fail and have to be replaced.

I fear I have been disappointing to you in describing such a crude method, but certainly, with the Downie furnace and the bodies that have come to me, they have been quite as disappointing to me and, I have no doubt, to many of you. I have never yet found anything that will compare with the coloring as shown by the sample in the first firing, neither have I seen a body which would produce a color, I was going to say, twice alike.

Dr. Eames.—A patient of mine recently came from the hands of Dr. Jenkins, who had put in several inlays in teeth which I had not ordinarily considered suitable for such work. One of these was in the mesial surface of an upper lateral, the tooth being small with a thin cutting edge. The cavity, or rather the inlay, formed a part of the cutting edge, and I shall watch the durability of this piece of work with much interest. It was very nicely done and makes a satisfactory appearance in the mouth, but it can be seen five or six feet away.

The other inlay corresponded very nearly with the one described by Dr. Wilson, being in a lower bicuspid, labial surface, extending below the margin of the gum. It seems to me that gutta-percha or gold is preferable to inlays in such cases, or what I often prefer in such cavities extending far below the gum margin is to build up to the gum line with alloy, and finish with gold, cement, or gutta-percha at a subsequent sitting.

Dr. Williams.—I would like to ask Dr. Hamilton what cement he prefers?

Dr. Hamilton.—I do not profess to be any authority on cements for this purpose. I have tried several of them,—the Harvard, the Xenolite, and Weston's crown and bridge cement. The latter offers many points of advantage. It mixes very thin, indeed, and it is said to harden just as well as the slower-setting cements, but I do not think it has the strength. At present I prefer the Harvard.

Dr. Daly.—In using cement in these fissures and little pits of atrophy, to cement your porcelain to place you must not use your cement too stiff. Of course the porcelain is a non-conductor and is not affected by thermal changes, but I believe that all teeth should be protected by some varnish. The cavity should be coated with sandarac, or Canada balsam dissolved in chloroform, before you put your cement in. I feel that even amalgam fillings—if you use amalgam—can be made more comfortable to the tooth if the cavity is smeared with some kind of varnish before they are put in.

An advantage of the porcelain fillings besides their beauty, and I might sometimes say invisibility, is the fact that they are not affected by thermal changes.

Dr. Gillett.—For ten years or more I have made occasional use of porcelain fillings, using several different kinds. I have not been satisfied with any. Recently, I have been experimenting with the Jenkins outfit. I will pass round some samples showing some of the possibilities in color and form, and the consistency of the fused material. My estimate of the Jenkins outfit and process agrees very closely with that expressed by Dr. Briggs.

Dr. Jenkins has made feasible the gold-foil matrix and provided a low fusing material that is very much better than any that I have previously seen. It is far superior to the Richter, although fusing at nearly as low a temperature. The general color is good, and the shades do not change when fused with reasonable care. Material from the several bottles will practically always match the

corresponding color sample. It resembles porcelain in appearance, but the thin edges look and act more like glass. It is hard enough for practical purposes, but I have found no difficulty in polishing it down with sand-paper disks. I think it sufficiently strong for labial and approximal cavities not exposed to very much stress, but should hesitate to use it on exposed corners. I may be mistaken in this, as Dr. Barrows, of Berlin, told me last summer that he was using it in crown- and bridge-work and found it satisfactory. Whether the profession abroad is as critical as to its standard of perfection in such work is a question for consideration. Dr. Hamilton's remark, "that it is surprising how much satisfaction a poor inlay will give," is very true. My first Jenkins's inlay was not satisfactory to me, but every one else is wonderfully happy over it. Others are entirely satisfactory to me, the color, fit, and finish being thoroughly good. I am satisfied that they will never be discovered so long as the cement maintains its integrity.

I would like to ask Dr. Daly how he would make an inlay from a porcelain rod to correspond to the larger inlay now going round.

I will call attention to the fact that for approximal work the wedging needs to be more (perhaps twice as much) as for gold work in order to get the matrix out and the inlay in. Often cavities will have to be opened more, one wall being opened back to the level of the floor of the cavity.

The fit depends entirely upon the accuracy of the gold matrix. If you make this accurately you get a perfect fit. It is very easy to spoil the matrix in tearing it out.

Dr. Joseph Head, at a recent clinic before the New York Odontological Society, showed a useful way of building out a corner of an incisor. He first crushed up a porcelain tooth of about the shade desired, and placed some of the crushed pieces in the matrix so they would stand out and give the desired contour. The low-fusing material was then added to fill the crevices and round out the surface.

Another point of interest was the fact that platinum-foil will be softer if annealed in charcoal, or, what is simpler for most of us, between sheets of asbestos, so keeping the air away while it is heated.

I have made crowns using the "Downie System,"—a porcelain facing attached to a gold cap and pin, and backed with Jenkins's body, the front of the band being also covered with the body. I

question its strength for such use, but think there are places in crown-work where it will be useful.

One important point to be mentioned is that this work, if well done, will take longer and cost more than to put in good gold fillings. My experience would indicate that it will often take twice the time. If you only prepare the matrix, it will be simpler but it will require an assistant with knowledge of the anatomy of the teeth, and good mechanical and artistic ability to warrant intrusting even the fusing to other hands.

Dr. Daly.—Referring to this case which Dr. Gillett asked me about, I could not do that with the porcelain rods. It is not possible. I have always resorted to the carver when such pieces as that came.

Dr. Werner.—I think Dr. Gillett brought out a point that has not been touched upon, and that is time. Will Dr. Hamilton please tell us his experience in that regard.

Dr. Hamilton.—At present it takes me twice as long to make a satisfactory inlay for a medium-sized cavity as it would for gold, but I think with more experience I can become a much more rapid worker.

Dr. Wilson.—I think the inlay rods are more or less unsatisfactory, and, as Dr. Gillett has just said, there are a great many irregular places where it is impossible to use them.

Something has just been said about "a perfect fit." The question is, What is a perfect fit? Gold fillings can be put in with such perfect joints that they cannot be detected with an explorer. On the other hand, it is a pretty difficult matter to put in a porcelain inlay where the joint cannot be detected with the aid of an explorer.

Dr. Brackett.—Before I begin my remarks on this subject, here is a specimen which helps to answer the doubts of the different gentlemen as to fit, and here is a magnifying glass under which it can be examined.

It seems to me that we are under very great obligations to Dr. Jenkins for what he has accomplished in providing us with a material that is fusible in a gold matrix,—a matrix which may be accurately adapted to the cavity,—and which seems to have great strength and excellent color.

We are under personal obligations to Dr. Charles Abbot, of Berlin, who has put this matter before us in such a comprehensive manner, and to Dr. E. D. Barrows, who has been Dr. Abbot's

assistant for quite a number of years, and who brought to this country last summer the first apparatus of this kind which was seen here, and who was so good as to unpack the apparatus in Newport and give a demonstration of its working. I have a feeling of gratitude to these gentlemen for having done this much. I have also a personal feeling of gratitude to Dr. Barrows for procuring for me, as he did for Dr. Gillett, one of these outfits complete. I do not understand that there is any difficulty whatever in any of you gentlemen being similarly provided, except it be the disparity between the supply and demand. The apparatus itself retails in Germany at four hundred marks, very nearly one hundred dollars of our money, to which must be added the duty (which amounted, on the two that we received, to eighty-five dollars and fifty cents, or, say, forty-two dollars and seventy-five cents for one) and several other charges, so that by the time the apparatus is at your office it means an expense of one hundred and fifty to one hundred and fifty-five dollars. I have no doubt that any gentleman in this room who desires this apparatus, and will submit to Dr. Jenkins his application for one, can have it without any great delay.

In the demonstrations that Dr. Barrows made to us there was no laborious exertion required to do the work. There comes included in the apparatus an English blow-pipe, that is most easily operated by an oscillating motion, and I should say that the sum total of power needed in making an inlay is less than the sum total of power required in the making of a Richmond crown. The colors as shown are demonstrations from baked specimens. Dr. Barrows made the suggestion to me that additional colors could be made by the blending of the bodies as they come. The selecting of the body to be used is done by matching the tooth with the sample card; for instance, if the baked specimen on the card marked "No. 17" matches the place where the inlay is desired, the inlay that you make out of bottle No. 17 will match it equally well. As to the strength of the material, judging from the experiments which I have made, such as pounding it on the anvil with a hammer and crushing it, it seems to me to compare favorably with the strength of carved porcelain teeth such as I have got from Mr. Woodman.

It does not seem to me that there has been any overstating of this thing when accompanied by accuracy of manipulation and deliberation in the work. Dr. Barrows in his own practice, being a most energetic, indefatigable worker, follows this plan: He takes

his impression, procuring his matrix and matching the color in regular office hours as the patient comes to the chair, and dismisses his patient for another sitting; then he makes his inlays quite largely with his own hands, and often in the evening, and is able in this way, with this long-continued labor himself, to do a great deal of work that could not well be all accomplished within ordinary office hours.

With reference to the objections that have been raised to the inaccurate fit of inlays that extend below the gum tissue, it seems to me that that is a mere trifling circumstance which could be readily overcome by building the tooth up to the gum level with some other and proper material and fitting the porcelain inlay to the rest of the cavity.

I hope that when this discussion is published it will be understood that we have an intelligent appreciation of the work of these dentists in Germany, and that we are grateful for what their labors have accomplished in our behalf.

Dr. Daly.—These corners and contours of Dr. Gillett's are certainly *restorations*, not inlays, but they come under inlay work. I am surprised to see the contour of it, and to see the density of that material. You know that the Downie body never furnished that. You can restore corners with the Allen body, or with the Consolidated bodies, but I should not expect to get such a contour. I have always felt that it was necessary to bake in pins until the past few years, but I now feel that the cement is tenacious enough to do all that is required of it.

Dr. Gillett.—Dr. Wilson has taken exception to my statement as to perfect fit, and perhaps it does need modification. What I had in mind was that the fit would be perfect from the stand-point of practical satisfaction,—that it would appear well. I have inlays in service which I cannot discover at a distance of three feet, although I know their exact location.

As regards utility, personally I would, for the present, limit it to those places in the mouth where we care more for appearance than for the very highest durability. So far as I know, it is the best we can do when the appearance of gold is objectionable. For such cavities, not exposed to heavy stress, I consider it the nearest to an ideal material that has yet been presented.

Dr. Brackett.—With reference to fit, Dr. Barrows showed that the restoration or inlay when it is pulled out of the matrix was all

ready for setting without any grinding. It fits as if it were fused in the cavity itself. The matrix, being No. 30 or No. 40 gold-foil, provides for about as little cement as could possibly be used. A large restoration may have little grooves ground on the unexposed sides for the sake of giving a better hold to the cement.

Dr. Hamilton.—I have been rather interested for a year or two in the attachment of porcelain faces to platinum caps, and in making crowns from porcelain, using a platinum base. I have tried some with this Jenkins body, which seem strong even when the contour was built directly on the surface of the platinum.

In my investigations in that line, I have Mr. Woodman's authority for the statement that the low-fusing bodies will be harder to pull off or flake from platinum than the high-fusing bodies.

Dr. Brackett.—I would like Dr. Daly to tell us what cement he uses to try his porcelain rod in the cavity.

Dr. Daly.—I use the sticky wax of Fowler's, and also the shellac stick made by Claudius Ash. They say that it will attach the tooth to a rubber plate and it can be worn for a week.

Dr. Wilson.—In regard to Dr. Hamilton's allusion to baking a thin layer of porcelain over platinum, it is only very lately that I have seen one made in very much the same way. The thin porcelain was gradually becoming loose, and when the patient came to me it was about ready to drop off. Food had accumulated underneath the porcelain, giving it a black and unsightly appearance. This brings up rather an interesting question as to whether a low-fusing body will adhere more closely to platinum than a high-fusing body. In making the tooth over, a high-fusing body was used. I would like to hear Dr. Williams's views on this point.

Dr. Williams.—I should say it would be apt to adhere to the platinum all right, but I should not expect it to be as strong as the high-fusing body.

HARRY E. CUTTER, D.D.S.,

Editor American Academy of Dental Science.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A REGULAR meeting of the Institute was held on Tuesday evening March 7, 1899, at the office of Dr. S. H. McNaughton, 63 West Forty-ninth Street, the President, Dr. E. A. Bogue, in the chair.

The minutes of the previous meeting were read and approved.

COMMUNICATIONS ON THEORY AND PRACTICE.

The President.—The President of the National Dental Association (Dr. H. J. Burkhart), in writing to me recently, said that he proposed to urge upon the association the propriety of accepting delegates from such bodies as those we represent, although at present the National Association is composed of delegates from the State societies only, and he has suggested, both to Dr. Allan and myself, that those of us belonging to State societies should cause ourselves to be elected delegates to the National Association, in order that our influence may be used to that end, and he urges that gentlemen of standing and influence should exert that influence in the National Association for the bodies at large.

Before proceeding with the work of the evening are there any questions on theory and practice?

Dr. W. St. George Elliott.—I will pass around among the gentlemen some German drills for the pulp-canals. They are said to be excellent, well tempered, and are exceedingly popular on the other side.

Dr. G. E. Rice.—I would like to ask the gentleman present their opinion as to the relative desirability of correcting prolonged lower maxillary jaws at an exceedingly early age, or whether it is better to wait until after the permanent teeth have developed?

Dr. G. S. Allan.—I have never attempted to move but one child's lower jaw at an early age, and then I had to wait until the permanent teeth had developed. I think I was not very successful.

Dr. Rice.—I should like to ask if it is done by moving the teeth forward or moving the lower jaw backward?

Dr. A. G. Weed.—There is no doubt whatever that the lower jaw can be moved back with success. The apparatus consists of two rubber bands, and has been used nearly a quarter of a century. I have never used it in a very young child, not below fourteen. My

general opinion is that at that age it is more apt to be a quick and certain success. The apparatus can be worn with perfect ease, does not destroy the child's comfort in his daily play and work at school, and does not interfere with the movements of the jaws in mastication and talking. I understand that Dr. Allan has had considerable experience in this process.

Dr. Allan.—I am quite certain that there has been more than one apparatus described that were more or less successful. They have all adopted the same general principles. There is no bending of the jaw; it is simply forced back in its socket. There is a thick double cartilage where the lower jaw is set into its socket, which yields very readily to pressure.

Dr. G. Evans.—I do not ordinarily apprehend injury to the permanent set by exerting pressure on the jaw or on the temporary teeth during their presence. I believe in gentle gradual pressure in changing the arch and position of children's teeth. I am not at all in favor of the rapid work done by some.

In a practice of over thirty years I have seen several cases where central incisors have had pulps devitalized by such methods. The occlusion should always be considered in moving the teeth, as the occlusion often decides of itself the position of a tooth.

When a bandage is used to reduce protrusion of a jaw, to be effective it should be applied at an early age.

The President.—When does the change take place in the occlusion and in the position of the jaw?

Dr. Allan.—It depends upon whether pressure is kept up steadily. Some object to wearing the bandage at all times during the day, but it is not wise or safe to remove the apparatus any portion of the time, and it can be worn with as little discomfort as any other regulating appliance.

The President.—All this seems to lead up to the principles of regulation. I have seen the hair taken off the head and the child's mouth begin to grow out of shape before retrogression of the lower jaw was accomplished. I do not mean to assert that it cannot be done, but I should like to know from those who have practised it the principles upon which it is accomplished.

Dr. C. B. Parker.—I have accomplished retrogression of the lower jaw in several instances. In those cases I have used a net, like the old-fashioned nets the ladies used to wear, and I never yet had any trouble of the kind referred to. I never hesitate to take

charge of a case, and I always expect success. The age I prefer is from ten to fourteen.

The President.—I hope that Dr. Parker will favor us later on with a full account. I for one would be glad to learn.

We will now hear the paper of the evening from Dr. Robert H. M. Dawbarn, Professor of Surgery in the New York Polyclinic Medical School and Hospital, entitled "False Tonsils."

(For Dr. Dawbarn's paper, see page 345.)

Dr. R. H. M. Dawbarn.—Waldeyer's tonsillar ring is composed of six lymph-glands connected by means of a chain of lymphatics.

The President.—I see we have the honor to have associated with us this evening two gentlemen who have been put down to open the discussion, Dr. Delavan, Professor of Rhinology in the New York Polyclinic, and Dr. Phillips, Professor of Otology in the New York Post-Graduate Medical School and Hospital, to criticise Dr. Dawbarn as thoroughly as they may.

DISCUSSION.

Dr. D. Bryson Delavan.—Mr. President, It would not be possible for us to discuss all of the points which have been touched upon in the admirable paper to which we have just listened. There are a few, however, to which I would like to refer. It seems to me that the most valuable suggestion to be derived from the paper is one which has occurred to me during the reading of it, namely, that the condition of lymphoid hypertrophy, of which we have been hearing, is one of great practical interest to the dentist. There is no doubt that obstruction of the upper air-passages and consequent mouth-breathing is the occasion of a large number of varieties of deformities of the upper jaw and hard palate, and therefore the indirect cause of serious malposition of the teeth. It can be proved without question that these deformities are due to the obstructed breathing, and it can also be shown that if the child be young enough and the obstruction to respiration be thoroughly removed, commencing deformity of the hard palate and upper jaw can be checked and an improved condition in the shape of the parts secured by the restoration of normal breathing. In consequence of this it is important to recognize the fact that efforts made by the dentist to correct malpositions of the teeth are directly hindered by the results of obstructed respiration. If, therefore, the faulty position of the teeth has been due to such obstruction, it becomes evi-

dent that efforts made to straighten the teeth should not be undertaken until the original causes of the trouble have been themselves removed.

In any case where a course of treatment is required for the straightening of crooked teeth, the dentist should discover, if possible, whether the patient is a mouth-breather or not. In case mouth-breathing be present, he should see to it that the condition is corrected before he undertakes the straightening of the teeth. If this suggestion be observed, this work will be rendered much easier and the possibility of improvement greatly increased.

Straightening the teeth in these young subjects is a somewhat serious matter when we consider that it must be done at a period of great general constructive activity and at a time when the child is pressed with the ordinary duties of school, with outside lessons and occupations of a trying character, with more or less of the excitement of social life, and with all of the necessary unrest and discomfort which are apt to be present at this time of life. Such a child suffering from a serious obstruction of the nasal breathing is naturally delicate and nervous, and it is asking too much of him to expect that all of the above-mentioned things should be carried on at one time without serious detriment to his general health. I think, therefore, it cannot be too strongly urged that the general health of the patient be built up by the securing of normal breathing before serious work upon the teeth is commenced.

A few words as to diagnosis and treatment: While the diagnosis may be readily made by the insertion of the finger into the child's pharynx, this practice is a disagreeable one to the patient, and should never be employed unless it is impossible to demonstrate the parts by the method of posterior rhinoscopy for the examination of the upper pharynx by means of a strong light reflected into it from the surface of a little mirror. It is necessary, in order to secure the best results in examinations of these patients, to use great gentleness and skill.

With regard to the use of anæsthetics: After many years' experience, during two of which I used chloroform exclusively in upward of two hundred operations, I am ready to say, without hesitation, that I prefer ether in these cases to any other anæsthetic. Properly administered, it is not necessarily more irritating than chloroform, and the whole testimony of modern research is to the effect that it is far safer. Nitrous oxide is not so easy of ad-

ministration to young children as it is to adults, and in cases of marked obstruction of the upper air-passages its results are sometimes disagreeable.

The diagnosis of lymphoid hypertrophy at the vault of the pharynx is usually easy to make. In some cases the facial expression of the child is all that is necessary to prove the presence of these growths.

In general it may be said that where the lymphoid tissue of the pharynx is increased sufficiently in size to cause obstruction, or to produce an undue amount of secretion with result of obstructing the pharynx and injuring the surrounding structures, the growths should be removed. It is not too much to say also that the operation for the removal of these growths is not entirely a simple one, and that it cannot with propriety be intrusted to inexperienced hands.

Dr. Wendell C. Phillips.—I suppose from the programme that possibly you might expect me to discuss this paper from the standpoint of the otologist, but I rather prepared to speak from your own, so far as my own experience would permit.

I did not hear the first part of the paper, but I think the point that you would like to have settled is, first, whether the presence of enlarged tonsils and the presence of lymphoid tissue in the vault of the pharynx are productive of deformity in the upper jaw. If I take a little different view from the writer, I mean no reflection on the paper. I have come to think that we have made a great bugbear of adenoids as a cause of deformity of the upper jaw.

I have recently examined a large number of adenoid cases, both in private and hospital practice, with special reference to deformity, and have found in many cases no tendency to maxillary deformity, especially in young children from two to ten years of age.

In the *Journal of the American Medical Association*, February 15, 1896, Dr. Fames, of Boston, says, "It has been said that the adenoid growths in the pharyngeal vault cause irregularities of the teeth. I do not believe this to be the case, but rather that the dental irregularities are only another expression of the same cause that operates to produce the adenoid growth; in other words, there is one cause common to both."

Dr. Talbot, of Chicago, believes "that there are many cases of contracted arches where mouth-breathing does not exist; there are also many cases of normal arches where it is present."

It is only in selected cases where we can be sure that the condition has been brought about by the presence of adenoid tissue in the nasopharynx. Perhaps the very severity of the case may have something to do with it. That is to say, in severe cases the high contracted arch may be developed. If this be true, the longer the adenoids are allowed to remain the more marked the contraction would become. I personally do not think that ordinary enlarged tonsils alone have much to do with the deformities of the jaw.

The point that was brought out by the writer in reference to removing the adenoids and tonsils is very practical. I think that as soon as adenoid growths are discovered it is important to follow with prompt surgical interference.

The ear is so closely associated with the pharyngeal vault that the otologist is brought to realize the results of these growths more markedly than perhaps any other people who are practising. The ears seem to be special victims to these pests of child life.

I have come to believe that the necessity of introducing the finger into the vault of the pharynx exists only in very rare cases. I have tried to think since coming in this evening of the number of times within the last three months I had used my finger in this way. If it had not been for one patient, and that this afternoon, in the hospital, I should not have recalled any, and I did that more because I was pushed for time than for any other reason. To begin with, to introduce the finger into the vault of a young child is a barbarous thing. I rarely fail to accomplish all I desire with a tongue depressor and a mirror. Once get the confidence of the child and the examination is easily made.

It is far better to see the growths than to feel them. The digital examination is so painful that the child immediately becomes one's enemy. Indeed, in many cases the diagnosis can be made without resorting to either. Children with chronic suppuration of the ears are almost always the victims of adenoids. There is a certain condition found in the drums which I have come to regard as almost pathognomonic of adenoids. I refer to the reddish-brown color of the drum so often observed.

The presence of lymphoid tissue in the vault of children is far more common than it is believed to be, and where it is present it should be removed at once. Such operation may not be required on account of any immediate danger to the nose and throat, but the danger to the ear is certainly very great, and even a small quantity

of the growth in the vault is a menace to the ears. There are many cases where there will really be no difficulty in breathing. I do not think there is any special difficulty in breathing in over one-half of the cases of lymphoid tissues in the vault. Many other cases show but little. We have to find it out from something more than the mouth-breathing or snoring at night.

The Valsalvian method in testing whether the child has adenoids or not may be very good, but children with adenoids usually experience more or less trouble with their hearing, and I would not think it safe to make use of this method or test for fear of inducing thereby a suppurative inflammation of the middle ear.

We all know that the reader of the paper this evening did not speak of "thumb-suckers," to which Dr. Delavan has alluded, with any degree of seriousness, especially in speaking to dentists, who all know of the dangers of this habit.

If the hygiene in the treatment of these diseases could be commenced early enough, something might be done towards preventing in the very young child the hypertrophy of the pharyngeal tonsil. Dr. Jonathan Wright has examined the tissues involved in foetal life, and has frequently found marked lymphoid growths.

The youngest child I ever operated upon was ten months old, a case of acute middle-ear suppuration.

In most cases it is better to operate under an anæsthetic. If the tonsils only are to be removed, it is not necessary to anæsthetize. Ether is to be preferred. One may go for some time with chloroform without accident, but finally a death occurs from it, and ether becomes the favorite.

I do not think in any way there is very much benefit in cocaine anæsthesia. The application is so apt to close its effect by contact with the mucous flow. The tonsil is not a highly organized tissue, and the pain of cutting is not great. In adenoid operations, it is important that the ether be administered by a man who is accustomed to these operations. The operator should acquire dexterity in this operation, and when so performed but a short time is required. It is not at all necessary to prolong an adenoid operation; one can be thorough and still do his work rapidly.

Every man has his choice of instrument. There is one that I have found most useful. It is what is known as Brandigee forceps. That instrument, properly introduced, removes almost the entire mass at one time; then use the curette and finally the finger-nail,

but except in very young children one cannot remove much of the growth with the nail.

The President has asked how I would make a diagnosis of adenoid growths. I make it from the conditions I see present: First, facial expression; second, ear symptoms; third, history; fourth, examination as heretofore indicated.

Dr. L. C. Leroy.—Why not use nitrous oxide alone? I have understood that the combination of nitrous oxide and ether, or a combination of ether and chloroform, have been the cause of serious accidents. I should judge that either alone would be preferable.

Dr. Dawbarn.—For the simple reason that in nitrous oxide alone it is necessary to have a mask that closely covers the respiratory region. As soon as the mask is removed, or certainly with the second or third breath, the patient will be awake and struggling, which is a dangerous thing to allow during the operation. Give gas first, if that is desired, and follow by ether. I shall have to differ with Dr. Leroy in his idea that primary use of gas followed by ether or chloroform has been the cause of serious accidents; if so, I have not heard of them.

Two points are perhaps worth dwelling upon. Chloroform can with sufficient skill often be given to the child while it is asleep without awakening it, causing it to slide from the natural sleep into the artificial slumber. This cannot be done with adults, or, at least, very seldom, without awakening them. It is impossible to accomplish with ether the same result in children. An obvious advantage of using chloroform in this way is to avoid frightening nervous and easily excitable little patients. Again there is not a physician here who does not know the method used by, for instance, Dr. Bennett, of New York,—first, nitrous oxide, the child becoming quiet, then slide into either ether or chloroform anæsthesia.

Dr. Howe.—It seems to me that Dr. Phillips's consideration of the possibility of the lymphoid growths being the cause of the deformities of the upper arch, if I understood him, was confined to it as the only cause, while I understood the paper to consider it only as a factor; and while it is true that many cases of contracted arches have no lymphoid hypertrophy, and there are perhaps many normal arches with such hypertrophy of lymphoids, still it may be claimed that these growths often do have an effect on the maxillary bone.

It seems to me that Dr. Dawbarn's explanation of the possibility

of its being produced in the way he describes is reasonable, and may account for it in a way that, so far as I am aware, has not been before suggested.

Dr. Phillips.—The question is, Cannot the deformity of the arch be congenital? I do not see why a contracted arch cannot be inherited as well as some other peculiar anatomical deformity. I do not know what the experience of the dentist may be in regard to it.

Dr. Howe.—I think the shape of the maxillary bone is as likely to be inherited as any other feature of the face. I have seen peculiar positions of the teeth—such as a peculiar twist in a lateral incisor on one side—descend through three generations, and peculiar aberrations of form and relation of jaws descend to children, so that I believe that many contracted arches are also inherited. I do not suppose that any of us believe that contracted arches are always due to the means under consideration to-night, but that they may be due to the influence of these growths in some cases has seemed to me very probable.

We are very much indebted to Dr. Dawbarn for suggesting the way in which it may take place, and to Drs. Delavan and Phillips for their discussion of the subject.

Dr. C. O. Kimball.—I wish to ask one or two questions. Are we to understand that this series of lymphoid structures is a normal condition found in all cases, so that this pathological condition is simply the hypertrophy of what always exists in a normal form? The second question is, In case a young person comes to us with a narrow contracted upper jaw, what other appearances would suggest the presence of these lymphoid bodies?

Dr. Dawbarn.—In answer to Dr. Kimball, “Waldeyer’s tonsillar ring” is not a pathological condition. It is always present,—that is, as a very slight aggregation of lymphoid tissue at the points named and connected by lymph-vessels, but in most cases it would take microscopic sections to prove that the structures are always there.

Normally one ought not to feel any lymphoid tissue at all in the pharynx. The second point I thought I carefully covered,—*i.e.*, in regard to how one could detect the adenoids.

As to examining with the finger, to which Dr. Phillips alluded adversely, you will, I am sure, recollect that I preferred and named, first, the diagnosis of the pharyngeal tonsils by the aid of the little

mirror. Nevertheless, it is very customary for the family doctor to use, just for an instant, simply his finger-tip for this purpose, even at the risk of some unpopularity with the little patient subsequently. The nail of the examiner should be cut down almost to the quick, of course; and I hope I may take it for granted that the finger is washed.

Dr. Kimball.—Where should we expect to find these troubles on the pharyngeal vault?

Dr. Dawbarn.—The finger-tip is introduced along the whole pharyngeal vault, which in the little child is so small that the finger almost fills it. It is Luschka's tonsil if at the top; an obstruction at the sides of the pharynx is from the tubal tonsils.

Instead of the normal, smooth, slippery mucous membrane, one recognizes instantly by the touch the soft yielding mass, irregular in contour, resembling, as has been said, the sensation of pressing on a bag of worms.

Dr. Allan.—The question I would like to ask is, How far is mouth-breathing responsible for these growths? Is a dentist warranted in making mouth-breathing the reason why he should take hold of the case?

I have a patient now only eight years of age. I have examined the throat as Dr. Dawbarn suggests, and feel warranted in telling the parents that the cause of the trouble is located in the pharynx. I want to know whether, if the mouth-breathing is corrected by dental interference, the trouble would be arrested? Are we justified in taking hold of these cases at an earlier age than we otherwise would, mouth-breathing being a cause, and a very decided one, of producing these growths and also tonsillar troubles? As a rule, in regulating teeth the dentist wants to wait until the child is well rid of all the first teeth, thirteen to fourteen years, but in these cases earlier interference seems necessary and proper.

In this special case I have advised the parents to commence dental treatment at once, not on account of the teeth, but because it can serve as a preventive to these troubles in the throat.

I have been very much interested in the paper read and discussed by the gentlemen who have been with us this evening. I would like to have some light on this very important point to us dentists. Are we right in instructing parents that mouth-breathing should be remedied at the earliest possible moment, and that the dentist must first be consulted?

Dr. Dawbarn.—I can answer that question very definitely and positively, and I am sure that Drs. Delavan and Phillips will agree with me. When the dentist meets a case of adenoids, he should in the interests of his little patient refer him at once to a surgeon. He is derelict in duty if he does not do this. Again, as to diagnosis without any direct examination by the finger or otherwise, if you find a child who has a mouth-breathing habit, and who usually snores in his sleep, such a child in an enormous majority of cases is suffering from the disease in question, and you can be reasonably sure you are all right in saying so. If he also has large faucial tonsils, this even increases the certainty of the diagnosis.

While on the subject of diagnosis I wish to emphasize the fact that dentists should not ignore abnormal conditions observed in the mouth, aside from the teeth. As members of the medical fraternity they have an added duty to their patients to perform in advising them to seek prompt help. As a case in point, some little time ago a case of leucoplakia lingualis, or "wash-leather tongue," which in twenty-five per cent. of instances ultimately ends in cancer of the tongue, was sent to me for diagnosis and treatment. The patient had to have an operation for the removal of one-half of his tongue, in order to save his life, for the disease was already well advanced. His dentist had seen his mouth a good many times; why had he not spoken to the patient about it, and advised earlier care that might have prevented the need for that operation? The patient spoke quite bitterly of his family dentist in this regard.

Dr. S. C. G. Watkins.—I have been much interested in this discussion. I would like to speak on one point which has not been made clear to me, and that is the effect of adenoids upon the mouth, and how the arch is affected. Several years ago our friend Dr. Delavan operated upon a case, a boy of twelve, who in infancy had a perfectly round normal mouth. There was a growth of adenoid tissue from about the fifth or sixth year up to the time the boy was twelve years of age. I made impressions of the mouth several times between the ages of seven and twelve, showing the change in the arch, it gradually becoming more narrow and pointed each time an impression was taken.

The arch ceased to grow narrower and higher after the operation. Since that time he has breathed through his nose to a considerable extent, although sleeping most of the time with his mouth open. As an effect of the adenoid growth, the child is compelled

to breathe through the mouth, and the result is the buccinator muscles are drawn down and the arch is contracted by the pressure. The muscles of the lower jaw are drawn up and in, and they have a tendency to flatten it, just the opposite condition from that found in the upper jaw.

This one case I speak of because it has been under my own eye during all these years. The boy was anæmic, weak, miserable always during the presence of the adenoids. Since the operation he has grown steadily, is now nineteen years old, six feet two inches in height, and weighs one hundred and ninety-five pounds. In that case neither father nor mother had a high narrow arch. The change in the shape of the arch was constantly perceptible up to the time of the operation.

Dr. Phillips made the statement that the adenoid growths do not always cause the high arch. That may be due to the fact that in some cases the bones may be of a more dense nature than in others, and not yield to the pressure of the muscles. We all have seen cases where people never clean their teeth, and yet they resist decay, and others who die of consumption whose teeth are in perfect condition; yet we expect to find poor teeth in diseased mouths and in the mouths of those with frail constitutions; in like manner I think the rule will hold good as to the adenoid growths not always affecting the arch.

Dr. J. Bond Littig.—I have always had an idea, when I found a case of mouth-breathing, that there was something abnormal about the nose or throat and usually send the patient to a surgeon for treatment.

I believe there is another muscle which occupies a prominent place in the shaping of the arch,—that is, the tongue. When one breathes through the mouth the tongue rests on the lower arch but does not touch the upper, so it does not have a chance to exert its influence as it should in shaping the upper arch. This I feel sure is one of the reasons why mouth-breathers have contracted arches.

Dr. Phillips.—I have been glad to get some expression of opinion from your stand-point as dentists. If the child goes more than one year and has no teeth, we are told that this is a symptom of rickets. May not some of these forms be due to a malnutrition of the bones, which when associated with adenoids would much more easily cause such deformity? I believe there must be something else besides the adenoids in order to cause such deformity.

Dr. Dawbarn.—I think the reader of the paper is very fortunate in having such distinguished brothers from the outside to discuss his paper. I am very proud of the service which they have rendered me to-night.

It is very natural, in the course of reading a paper as long as mine, and reading it as rapidly as I did, that a few of the many things discussed therein should not be remembered by my hearers. I believe I alluded to the atmospheric pressure among causes leading to the partial obliteration of the useless respiratory nasal space when the pharynx is obstructed. In discussing the stigmata of degeneration I mentioned the fact that the high narrow arch is occasionally due not to degeneration but simply as a mark of inheritance.

Regarding the question of choice in anæsthesia, we cannot to-night go fully into that immense field, which only a little while ago I discussed in a pamphlet upon "Threatened Death during Anæsthesia, and its Treatment," and which was sent to all the members of this Institute.

There is absolutely no peculiarity about this operation requiring any different anæsthetic from any other operation of the same length. As to chloroform, in skilled hands it is safe, and children's specialists—Jacobi for example—teach that in children it is especially so. When the eminent Dr. von Nussbaum could bear witness, as he did, that he saw chloroform administered forty thousand times, and without a death, no better proof seems needed that deaths from chloroform mean unskilled handling, as a rule. We must also remember that the proportion of ether deaths (which Dr. Weir gives as one in two thousand in New York Hospital) would mount even higher if we included those who die weeks and months later on from the lighting up of latent kidney and lung diseases by this irritant cause. Of course, it is admitted that there are conditions in which we would prefer ether, and it is much the safer with an anæsthetic with but small experience than is chloroform.

Concerning the Valsalvian method of testing the Eustachian tube, regarding which Dr. Phillips takes issue, that is not, of course, original with Dr. Dawbarn. I, too, should oppose its use save in children whose pharynges were first cleansed by the douche. It is certainly not necessary to help the diagnosis of pharyngeal tonsillar growths. It was only named as one means whereby we can

determine whether these growths have already encroached by pressure on the tubes.

Regarding the special forceps of which Dr. Phillips is so fond, while he was exhibiting them Dr. Delavan remarked, "Dangerous instruments!" This is a case in illustration of the point Dr. Phillips himself made,—namely, that the question which instrument is best to use is largely a matter of the personal equation. In Dr. Phillips's hands I do not doubt, and I am sure neither does Dr. Delavan, that the forceps in question are safe, though for most I think it would be unsafe as compared with the Gottstein curette.

I must beg to differ with the opinion expressed by Dr. Phillips that dentition delayed beyond one year means rickets as its cause. I know of cases to the contrary, although it is doubtless true that late dentition is one among a half-dozen or so of important signs of the onset of this disease.

The President.—This growth which we have had under discussion this evening has happened to come under my attention at various times. A dentist in Boston, a man of marked ability, invited me once to examine the irregular teeth of his son. When I saw the boy I immediately said, "Why, have you examined for adenoids?" The reply was, "I never thought of that." Here was a boy about sixteen years of age, the father giving himself to our work, yet he had never before had thought of lymphoid growths. The boy was operated upon immediately. There was found to be considerable lymphoid growth; the boy grew rapidly after its removal, the teeth were brought into their normal position, and there is nothing marked about him now, though the prognathous condition of the upper jaw was a great deformity when I first saw him. I mention it to show how such cases may come before us, and if we are not prepared to diagnose them, we may fail to render the greater service needed.

Another case, a young lady, sixteen years old, suffered from adenoids complicated with an irregularity of teeth. She had consulted a dentist, who, after moving the teeth into new positions, cut the cusps off because they interfered with closing the teeth. I could do nothing for the young lady unless these adenoid growths were removed. Upon their removal the teeth were regulated as nearly as I was able, considering that there had been certain teeth extracted, and a retaining plate was inserted. The young lady began to grow in size, strength, and beauty; health was confirmed,

and in three years she was described as "a tearing beauty." A stronger, healthier woman one would not wish to see. She was married one year ago. The extraction of teeth and the loss of her cusps have interfered with the function of mastication. I can hardly say enough against the way the cusps were mowed down like grass before the sickle. It seems to me that a surgical interference should have been called for by both these dentists, in order to save the teeth and so retain complete mastication.

It would seem to me that the existence of adenoids in foetal life goes to show that irregular teeth and narrow, high upper jaws may be congenital as well as the adenoids. That is a field in which we can study a good deal before we find out all there is in it.

We are hoping to be able to find out some time whether the irregularities in the teeth are dependent upon adenoids, or whether adenoids are the cause of irregularities in the teeth.

Dr. Kimball.—On behalf of the Executive Committee and the Institute, I desire to express our very deep gratitude to these three gentlemen,—extremely busy men,—who have come among us, each bringing some special point of diagnosis, pathology, or treatment, not only for the purpose of enlightening us, but to enable us in our ordinary routine work to understand the cause of certain nasopharyngeal conditions which affect us directly, their discomforts and dangers, and the means of their removal. I move that a vote of thanks be extended to Drs. Dawbarn, Delavan, and Phillips for favoring us with their presence this evening and this interesting discussion.

Carried.

Adjourned.

FRED. L. BOGUE, M.D., D.D.S.,
Editor The New York Institute of Stomatology.

Editorial.

THE VALUE OF THE DOCTORATE IN DENTISTRY.

IT has become a trite expression to assert that dentistry has grown to the proportion of a profession in the last half-century, and while this is true and the repetition of the fact becomes burdensome, it yet remains equally true that dentists, in this country, do not yet appreciate the fact that the degree of Doctor of Dental Surgery, established by the Baltimore College of Dental Surgery in 1839 (D.D.S.), and that of Harvard University D.M.D. (Dentariæ Medicinæ Doctor) represent an advance in dental culture that cannot be formulated in words.

These degrees have had the usual experience of all innovations in being contemned by those holding the older degrees and equally held in little respect by those in dentistry who for various causes had failed to acquire the honor.

For a long series of years the titles of D.D.S. and D.M.D. were not considered of sufficient importance to attract much attention outside of the schools conferring them, but as colleges increased and the graduates began to take prominent places in dental work, there arose two elements directly antagonistic, one to degrade the title and the other to make it more worthy of respect by enviring it with legislative enactments. Both of these efforts have, positively and negatively, brought the two degrees into a critical contest in which there seems a possibility, remote it is true, of the titles being deprived of all value by being ground between the upper and lower millstones of law violation and law observance. It is, probably, true that the best test of the value of anything is the attempt to reproduce it. The counterfeiter and the plagiarist we will always have with us, and in spite of law, wherever money or credit is to be obtained, honestly or dishonestly, there will be minds capable of formulating methods for their accomplishment. It was, therefore, not at all surprising that as the degrees in dentistry became valuable the degenerate class saw their opportunity and took advantage of the demand by meeting it with diplomas that required only the engraver's skill and the printing-press to put them in circulation.

The first effect of legislative enactments naturally increased the value of these titles, and, as they represented more than formerly

and required greater exertion to procure, they indirectly, but as positively, made the fraudulent trade more active and the degrees, to that extent, of less value.

This condition of affairs has not been apparent in this country; in fact, dentistry up to last year was quite content with its degrees, entirely unaware that a mine was being prepared by the Foreign Relations Committee of the Association of Faculties and which was sprung upon them at Omaha in 1898. It is true there were constant complaints from abroad of fraudulent diplomas, but these were supposed to have had their origin outside the limits of the United States. It was, therefore, a humiliating acknowledgment that this committee made, but the Faculties gave the energetic chairman full power, and the result of its work has been detailed upon our pages. One concern has been convicted and a stringent law has been passed in Illinois which, if enforced, will make it impossible for this work to be carried on in that State.

The effect of all this has had the result of stamping a stigma upon the degrees conferred in this country which it will take many years to overcome. This is more particularly noticeable in foreign countries.

This state of affairs has stirred the graduates of American colleges resident abroad into a state of activity never before witnessed. This is creditable and natural, for with a lessened respect for the diploma is a proportionate loss of prestige as American dentists. Never, in the experience of the writer, has more interest been taken abroad in this matter of degrees, and this is not confined to those of American birth, but is equally true of all those holding legitimate American degrees, and these are becoming very numerous throughout Europe. The reports that reach us of meetings held, papers read, and resolutions passed indicate that American dentists abroad mean to be heard upon this question. One or more delegates from foreign countries will meet with the Association of Faculties at its meeting at Niagara, and that body promises to have the most active meeting held since its organization.

The question of protection to the American degree, of whatever name, will demand intelligent and conservative treatment. Much that will be impossible of attainment will no doubt be presented, and much that ought to be adopted and enforced will equally be passed by, but it is hoped and believed that a wise judgment will prevail.

Suggestions of what ought to be done are flowing in from various sources. Our *confrères* abroad seem to be laboring under the impression that the remedy lies in a National diploma given by a National Board of Examiners and that such a document, or the endorsement of such a Board, would immediately change the opinion now held by the authorities of the various countries of Europe. It doubtless would change the present feeling of contempt to one of respect, but what then? Will the holder of that diploma, or endorsement, be any nearer recognition than he is to-day?

The editor of this journal is not near enough to European thought to give a positive opinion, but if experience is worth anything, it leans decidedly to the view that, were a diploma endorsed by all the authority of the United States, it would not be recognized as entitling the holder to practise in competition with the title given in foreign countries, earned after periods of scholastic training under governmental laws and carried out by the ministers of instruction. It would seem, therefore, a waste of time to endeavor to accomplish the impossible. It is not so much the character of the diploma as it is the feeling of antagonism in foreign countries against all dentists holding the American degrees. Those of American birth are regarded as trespassers upon the rights of those to the manor born, and to the extent of their success are they, in their opinion, robbing them of a portion of their just dues. How this feeling can ever be overcome is a problem, and in the opinion of the writer it will ever remain a prominent factor in continuing the non-recognition now extant in Europe. This opposition is not unreasonable, and we in the United States have no cause to complain of this selfish side of human nature, for it is presented in our several States, depriving citizens of other States from entering into practice except by following prescribed laws, in many instances prohibitory in character.

Our friends abroad seem to be possessed with the idea that the government of the United States has the power to step in and meet the difficulty. They have, apparently, been so long within the influence of foreign thought that they have, in a measure, lost, to that extent, appreciation of American ideas of government. The Constitution of the United States distinctly states what the government can and cannot do. The rights of the several States have always been jealously guarded, and the duties of each of these to provide laws for their internal government cannot be infringed

upon. This limitation of power is one of the peculiarities of our system, difficult of comprehension by foreign powers, and instances are numerous where indemnity for injuries has been demanded and not complied with, for the reason that they have been outside of the national jurisdiction. The power to create a National Board of Examiners does not exist, and to effect it a radical change must be made in the Constitution, and this, it is safe to assume, will not be done.

If this be correct, the true idea is to conserve the methods at our command and endeavor to surround the diploma, as now given, with all the safeguards of State laws, intelligently framed and with equal intelligence enforced.

The question has assumed such proportions that the limits of a single editorial are insufficient to meet it at all points. Its importance is, however, fully recognized, and its free discussion will help to clear up much confusion that seems to exist not only abroad, but in this country.

The degree, honorably earned, whether held in this country or abroad, has a value recognized by all, and whatever shadow may have been thrown upon it by disreputable practices will be dispelled by the sure educational foundation which is being continually strengthened through a broader culture. Upon this must depend the value of any degree, and in proportion as this is increased will the doctorate in dentistry be respected.

Domestic Correspondence.

WORK OF THE FOREIGN RELATIONS COMMITTEE.

BUFFALO, N. Y., April 17, 1899.

TO THE EDITOR:

SIR,—You are well aware that as the direct result of the agitation in the National Association of Dental Faculties of the existence of fraudulent dental colleges, the sale of dental degrees by them at home and abroad, and the opportunities given for the outrageous traffic through the existence of laws permitting their legal incorporation, especially in the State of Illinois, an association of the universities and reputable literary and other institutions of learning

was formed in that State for the purpose of securing a repeal of the obnoxious legislation. On the part of the Dental Faculty Association, the matter was in the hands of the Foreign Relations Committee, with power to take such action as it deemed best. The report made by that committee at the annual meeting of the Association held in Omaha, Neb., in August, 1898, had been extensively quoted, published, and circulated in the State of Illinois, and had been largely instrumental in bringing about this organization of the literary universities and colleges.

The Foreign Relations Committee very promptly secured competent legal counsel in the State of Illinois, and began a suit against the worst of the fraudulent dental colleges. In carrying on the suit the committee had the co-operation and assistance of the State Board of Health of Illinois, and the State Dental Examining Board. At the same time, in conjunction with the latter, it had prepared bills repealing the acts under which the fraudulent colleges had been incorporated.

The committee appointed by the Association of Literary Colleges had introduced more sweeping bills, and ours was to be used only in case of the failure of the more complete one of the universities.

The university bill aroused an opposition which proved fatal to it, whereupon the following was introduced, has been promptly passed, and is now part of the laws of the State of Illinois. Great credit is due the counsel of the Foreign Relations Committee, Mr. Walter Sayler, of Chicago, for his energetic and persistent action.

The suit of the committee against "The Independent Medical College," of Chicago, has been decided in our favor, but as was expected, it has been carried to a higher court. That concern was reported to own no less than eight different charters, and little could be expected until successful legislation had made them null and void. It was deemed best to carry on both attempts simultaneously, that the victory when it came might be the more complete.

W. C. BARRETT,
Chairman Committee.

A BILL

For an act to amend Section 2 of "An Act concerning Corporations," approved April 18, 1872, in force July 1, 1872, as amended by act approved June 17, 1893, in force July 1, 1893.

SECTION 1. Be it enacted by the People of the State of Illinois represented in the General Assembly: That Section 2 of "An Act concerning Corporations," approved April 18, 1892, in force July 1, 1872, as amended by act approved June 17, 1893, be and the same is hereby amended so that the same shall read as follows:

Whenever any number of persons, not less than three nor more than seven, shall propose to form a corporation under this act, they shall make a statement to that effect, under their hands and duly acknowledged before some officer in the manner provided for the acknowledgment of deeds, setting forth the name of the proposed corporation, the object for which it is to be formed, its capital stock, the number of shares of which such stock shall consist, the location of its principal office, and the duration of the corporation, not exceeding, however, ninety-nine years, which statement shall be filed in the office of the Secretary of State. The Secretary of State shall thereupon issue to such persons a license as commissioners to open books for subscription to the capital stock of said corporation at such times and places as they may determine; but no license shall be issued to two companies having the same name:

Provided, that the Secretary of State is hereby empowered, and it shall be his duty, to revoke charters issued to corporations which authorize such corporations to confer degrees, diplomas, or other certificate or certificates of qualification in the science of medicine, pharmacy, or dentistry, upon the recommendation of the Attorney-General, such recommendation to be accompanied by affidavit that such corporation is conducting a fraudulent business or violating the terms of its charter; or the Attorney-General may in his discretion file a bill in chancery, in the name of the People of the State of Illinois, against any corporation conducting such fraudulent business or violating the terms of its charter, in any court having jurisdiction of the corporation and subject matter of such bill, and for an injunction to restrain said corporation from conducting its business fraudulently or violating the terms of its charter, and also for the dissolution of said corporation, and thereupon it shall be the duty of the court in which said bill is filed to hear and determine the same as in other cases in chancery.

And provided, further, that this act shall apply to schools, colleges, or universities which now or may hereafter be licensed in this State, notwithstanding any provisions that may exist in their charters.

Notes and Comments.¹

ARSENIC IN DEVITALIZING PULPS.—The severe pains accompanying applications of arsenic to the dental pulp may be considerably lessened if an equal amount of antipyrin is used in connection with the arsenical paste. The antipyrin reduces the blood-supply, and hence prevents the congestion that invariably results from the use of arsenic.—*Dental Digest*.

TINCTURE OF IODINE FOR THE REMOVAL OF DEPOSITS.—Dr. Register says, "Apply the dilute tincture freely to teeth and gums, which will constrict puffy gums, drawing them away from about the teeth and outline deposits, which might otherwise escape detection. It loosens deposits upon the teeth, insinuating itself into minute crevices and rough areas of the crowns. Follow the iodine with ammonia, which forms a colorless solution, leaving the teeth much lighter in color. Clean and polish the surfaces."

CATAPHORESIS—LEAKAGE.—Avoid the use of ligatures in applying the rubber-dam, as, unless they are steeped in melted wax or thoroughly saturated with chloro-percha, they become the means of conveying the current to some point where there is gum contact, thus causing leakage. Oxyphosphate, mixed to a creamy consistency and poured around the margins and upon adjoining surfaces, forms a box cavity which is thoroughly insulated.—W. V. B. AMES, *Dental Review*.

BLEEDING GUMS.—To obviate bleeding of the gums in crown- and bridge-work, Dr. Conrad E. Wittlaufer, in the *Dental Practi-*

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

tioner, says, apply a twenty-five-per-cent. solution of pyrozone. This acts as a styptic, one or two applications rendering the gum perfectly dry for from ten to fifteen minutes.

Current News.

NATIONAL DENTAL ASSOCIATION.

THE annual meeting of the National Dental Association will be held in the ball-room of the International Hotel at Niagara Falls, August 1, 2, 3, and 4, 1899.

A railroad rate of one and one-third fare on the certificate plan will be obtained. Also reduced rates on C. & B. and Northern Transportation Steam-ship Lines. It is suggested that members living at a considerable distance organize parties and thereby be enabled to secure lower rates from railroad companies.

Following is a list of hotels: Cataract House, \$3.00 to \$4.00 per day; International Hotel, \$3.00 to \$4.00 per day; Kaltenback Hotel, \$3.00 per day; Imperial Hotel, \$2.50 to \$4.00 per day; Columbia Hotel, \$1.50 to \$2.00 per day; Temperance House, \$1.50 to \$2.00 per day; Niagara Falls House, \$2.00 per day; Niagara House, \$2.00 per day.

Dr. M. O. Cooley, of Niagara Falls, N. Y., will engage rooms and answer any questions regarding local arrangements for the meeting. Definite meeting-places for sections will be announced later.

It is the wish of the officers of the Association that members make special efforts to be present at section meetings on account of the unusual number of valuable papers which must first be passed upon by the sections to which they properly belong.

The following is the preliminary programme:

Dr. N. S. Jenkins, Dresden, "Porcelain Enamel Inlays."

Dr. Edward H. Angle, St. Louis, "Orthodontia." (Illustrated.)

Dr. W. A. Price, Cleveland, "The Absolute Efficiency of the Controllers of the Market for Dental Cataphoresis."

Dr. L. E. Custer, Dayton, "Dental Electricity."

Dr. S. S. Stowell, Pittsfield, "The Practical Side of It."

Dr. E. P. Beadles, Danville, "A Bastard Profession."

Dr. Truman W. Brophy, Chicago, "Surgical Operations in Early Infancy for Palatal Defects."

Dr. E. K. Weldstaedt, Minneapolis, "Cements."

Dr. James Truman, Philadelphia, "The Reflexes of the Lower Molars."

Dr. J. N. Crouse, Chicago, "Operative Dentistry."

Dr. B. H. Catching, Atlanta, "Gomphosis."

Dr. R. Ottolengui, New York, "Prognathism." "Extraction and Delay *versus* Expansion and Early Attention." (Illustrated.)

Dr. W. V. B. Ames, Chicago, "Some Phases of the Cement Question."

Dr. Thomas Fillebrown, Boston, "A Study of Harelip and Cleft Palate." (Illustrated.)

Dr. M. L. Rhein, New York, "Pyorrhœa Alveolaris."

Dr. Harvey, Battle Creek, "Constitutional Deterioration the Cause of Dental Caries."

Dr. W. C. Barrett, Buffalo, "Oral Affections in Secondary Syphilis."

SUBJECTS TO BE ANNOUNCED.

Dr. W. Geo. Beers, Montreal; Dr. G. V. Black, Chicago; Dr. H. L. Ambler, Cleveland; Dr. W. H. Whistler, Cleveland; Dr. Joseph Head, Philadelphia; Dr. A. W. Harlan, Chicago; Dr. John S. Marshall, Chicago; Dr. C. N. Johnson, Chicago; Dr. A. H. Peck, Chicago; Dr. H. J. Goslee, Chicago; Dr. R. H. Hofheinz, Rochester; Dr. F. W. Low, Buffalo; Dr. G. V. I. Brown, Milwaukee; Dr. T. B. Hinman, Atlanta; Dr. H. H. Johnson, Macon; Dr. B. Holly Smith, Baltimore; Dr. C. Edmund Kells, New Orleans; Dr. M. C. Smith, Lynn; Dr. L. M. Cowardin, Richmond; Dr. Edward C. Kirk, Philadelphia; Dr. Carl Theodore Graum, Chicago; Dr. C. L. Hungerford, Kansas City; Dr. L. L. Dunbar, San Francisco; Dr. W. Ernest Walker, Pass Christian.

A revised programme, with reports from chairmen of sections, will be issued later. Prominent members of the profession from abroad have been invited to be present.

The names of the gentlemen who have promised to present papers is a sufficient guarantee of the high character of work which will be done at this meeting. The minor details will be carefully looked after and all unnecessary and irrelevant matter eliminated, so that the business of the Association may be transacted in a

prompt and expeditious manner. It is hoped that the various State Societies will send full delegations, and that all members of the Association and reputable dentists in this country and Canada who are not members, will show their interest in and loyalty to the National Association by attending this meeting.

H. J. BURKHART,

President.

EMMA EAMES CHASE,

Corresponding Secretary.

J. N. CROUSE,

Chairman Executive Committee.

AMERICAN DENTAL SOCIETY OF EUROPE.

UPON motion, the following report of the committee appointed by the American Dental Society of Europe, in London, August, 1898, was carried unanimously:

“WHEREAS, A Special Executive Session of the American Dental Society of Europe has been called at Brussels, April 1, 1899, for the purpose of considering what further action shall be taken towards improving the standing of the graduates from American Dental Colleges practising in Europe, and to receive and act upon the report of the Committee appointed in London at the last Annual Meeting.

“WHEREAS, A majority of said Committee and a large number of the active members of the Society being present from all parts of Europe, thereby showing their great interest in the subject under consideration,

“*Resolved*, That the American Dental Society of Europe views with pleasure and approval the action of the National Association of Dental Faculties, United States of America, in appointing a Foreign Relations Committee, and hopes that this Committee will be indefinitely continued, and empowered to take such action as shall appear to its members to be for the best interests of the profession.

“*Resolved*, That the Society expresses its thanks to the National Association of Dental Faculties for its resolution and action in

accepting the report of its Foreign Relations Committee, and continuing it at Omaha, August, 1898, and creating Advisory Boards in all European countries, with the view that the certificates of Foreign students proposing to enter American Dental Colleges be submitted to the Advisory Boards of the respective countries of which they are citizens or residents.

“Resolved, That it is the opinion of this Society, that Foreign students should possess such a knowledge of the English language as will enable them to thoroughly comprehend the lectures and teachings which they will be called upon to pass examinations in, and that no foreign student should be allowed to pass any examination through the medium of an interpreter.

“Resolved, That the American Dental Society of Europe heartily approves of the wisdom of requiring a preliminary examination of students from European countries, or would suggest as preferable that it be required of each foreign student that he present official certificates of having passed the preliminary requirements for matriculation as a dental student in his own country, and that these certificates be endorsed by the Advisory Board of said country, and that they also be subject to the rules of the National Association of Dental Faculties.

“Resolved, That this Society approves of the resolution of the Foreign Relations Committee of the National Association of Dental Faculties, to appoint Advisory Boards consisting of ‘not more than three members,’ and it is hoped, for the accomplishment of the best results, that the number of members on each Board be raised to three at the earliest practical moment, and this Society is unanimously and strongly of the opinion that three are necessary to constitute an influential Board of this nature; and that, where practicable, at least one member should be a native of the country.

“Resolved, That the American Dental Society of Europe tender a sincere vote of thanks to the National Association of Dental Faculties, and to the Foreign Relations Committee, and especially to their energetic chairman, Dr. W. C. Barrett, for the active and hearty manner in which they have met the appeals of their *confrères* in Europe, who for so long have urged the importance of the consideration this subject is now receiving at their hands.

“Resolved, That a Committee upon Dental Education be a permanent committee of the Society, and that said committee consist of all the members of the Society who are members of the Advisory

Board of the Foreign Relations Committee of the National Association of Dental Faculties.

(Signed)

"L. C. BRYAN, *Chairman.*

"W. E. ROYCE.

"W. MITCHELL."

It was further moved and carried "That the report of the Committee be sent to the various dental journals for publication at the earliest possible date."

MISSOURI STATE DENTAL ASSOCIATION.

THE Thirty-fifth Annual Meeting of the Missouri State Dental Association will be held in Kansas City, Mo., July 11, 12, 13, and 14, 1899. An interesting programme will be presented.

Hotel and railroad rates have been secured.

All members of the profession are cordially invited to attend.

B. L. THORPE,

Corresponding Secretary.

THE CHICAGO DENTAL SOCIETY—OFFICERS FOR 1899-1900.

President, Garrett Newkirk; First Vice-President, G. W. Cook; Second Vice-President, B. D. Wikoff; Secretary, Elgin Ma Whinney; Corresponding Secretary, C. S. Bigelow; Treasurer, A. B. Clark; Librarian, C. J. Merriman; Member Board of Directors, Edmund Noyes.

Board of Censors.—A. W. Harlan, Chairman; W. V.-B. Ames, C. N. Johnson.

C. S. BIGELOW,

Corresponding Secretary.

100 STATE STREET.

NEW JERSEY DENTAL EXAMINING BOARD.

The summer meeting of the New Jersey Dental Examining Board will commence on Wednesday, July 5, at No. 88 Broad Street, Elizabeth, N. J., at ten o'clock. All preliminary credentials from applicants must be approved by the Superintendent of Public Instruction and in the hands of the secretary before June 20.

G. CARLETON BROWN,
Secretary New Jersey Dental Examining Board.

THE International Dental Journal.

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Original Communications.¹

PYORRHOEA ALVEOLARIS, FROM A BACTERIOLOGICAL STAND-POINT, WITH A REPORT OF SOME INVESTIGATIONS, AND REMARKS ON THE TREATMENT.²

BY W. J. YOUNGER, M.D.

GENTLEMEN,—It is a customary thing among those who present papers before a learned assembly like this to preface their article by an apology for shortcomings, either from fear of the worthiness of their composition, or from an assumption of laudable modesty. I will not be so rash as to violate this hallowed precedent by omitting such an introduction to my effort, especially as I fear you will discover that my shortcomings do not belong to the fancied order, but are founded on a reality requiring your merciful consideration.

The time I had given myself for the solution of the bacteriological problem involved in the suggestion of the title of this paper has proved inadequate to the full purpose of its design. But I had a promise involved, and I felt that if I did not present to you at this meeting an introduction, at least, to the subject, which might

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read before The New York Institute of Stomatology, April 4, 1899.

turn your attention to investigating what I believe to be the true etiology of pyorrhœa alveolaris, I should not be able by the restriction of professional labor and engagements to meet with you at all. The word "must" is a powerful one, and under its behests efforts are developed that otherwise would lie dormant, and actions achieved which ordinarily would be considered impossible. So, under the stimulus and goading of this little word, I come before you to-night, to present to you the commencement of a new line of thought which may shed a fresh light on the causation of this scourge, that has so long puzzled the wisest of our profession and been written on *ad nauseam*.

Writers have divided pyorrhœa into so many different varieties, and have called so many varied pathological conditions of the gums and alveoli by this name, that I feel it incumbent on me to define just what I personally consider pyorrhœa alveolaris to be.

Pyorrhœa alveolaris is characterized by an inflammation of the gums, a deposit of characteristic greenish-gray or slate-colored tartar, and wasting of the alveoli, accompanied by the formation of pus and pus-pockets between the tooth and alveolus; the disease being due, as I believe, to a specific bacillus. The disease is chronic in its duration, and results in the ultimate loss of the teeth. This slate-colored incrustation of which I have spoken I consider pathognomonic of this disease. There is another condition wherein we find a recession of the gums with absorption of the alveolus, and the root of the tooth is apparently free from deposit; but in these cases the gum is not swollen and inflamed, on the contrary, it is attenuated; there is no discharge of pus, and I do not think it due to a specific bacillus. The cause of this state of the gums is something entirely different. It is not true pyorrhœa alveolaris, and therefore we will not discuss the etiology of this condition in this paper.

We will now consider the formation of calculi or calcareous deposits in the body.

In order that a calculus may form, or that any deposit of earthy matter (lime salts) or crystalline substances may form, it is necessary that some insoluble substance be present to serve as a nucleus, around which layer after layer, or crystal upon crystal, can be deposited; just as a thread, placed in a thick syrup, serves to start the crystallization or deposition of sugar; so a crystal of uric acid or of triple phosphate, or a clump of mucin and bacteria, may serve as a starting-point for a deposit of the earthy matter found in solution in the tissues and fluids of the body.

The greater number of the earthy deposits found in the body, and especially those found around the teeth, are composed of calcium phosphate and calcium carbonate held together by mucin, epithelia, and bacteria. The cause of such deposits being formed around the teeth is due to the presence of bacteria, which, by a fermentative or putrefactive process, causes an agglutination of the mucin in the saliva, and this serves as a nucleus for the deposition of the earthy matter,—calcium phosphate and carbonate (tartar). In fact, none of the so-called calculi are formed anywhere in the body,—bladder, kidney, etc.,—except in the presence of bacteria (uric acid calculi being possibly excepted) which bring about a suitable condition for their formation.

In the disease which we have under consideration, we find an incrustation upon the roots of the affected teeth which differs from the ordinary calcareous tartar deposit. This dark deposit, varying in hardness, contains no bacteria, and has a nucleus or matrix composed of mucin and other proteid decomposition products of the uric acid group,—viz., xanthin, etc. In fact, from its chemistry, it could properly be classed among the xanthin calculi. The fact that no bacteria are found in the body of the deposit is of some importance in determining its formation. As already stated, the deposit is in part made up of bacterial decomposition products, which of necessity are incompatible with the life of the organism which formed them; hence, the deposit serves as a protection to the tooth substance from further invasion by bacteria, which is in keeping with the conditions found in *pyorrhæa alveolaris*. This fact also indicates the agency of a specific bacterium, capable of forming a specific product from the proteid substances acted upon, which is impervious to the action of the acids and other substances formed by the bacterium, which generally acts upon bony tissue. Hence, we find that the roots of the teeth are not affected chemically by these acid products. Further, the deposit, when once attached to the cementum of the root, serves as a nucleus for the deposition of the lime salts and other inorganic substance set free by the bacteria in their action on the structures around the affected tooth. This action extends to the alveolar processes, which are slowly eaten away by the acid formation of the bacteria; hence the term, though incorrect, “absorption of the alveolus.” This necessarily causes a separation of the alveolus from the root, which results in loosening and eventually the exfoliation of the affected tooth.

In proof of the claim which I make that this disease is due to a specific bacterium, I beg leave to submit for your consideration the results of a bacteriological investigation made in conjunction with Dr. G. W. Cook, of Chicago, upon eight patients suffering with well-marked cases of this disease.

Before making any examination for bacteria in these cases the teeth and gums were thoroughly washed, first with methyl alcohol, forty-per-cent. strength, and then with a carbolic acid solution, five-per-cent. strength. The teeth were, moreover, wiped with cotton saturated with these solutions, reaching well underneath the gingival margin, after which mouth and teeth were washed with sterilized water. Two operations were made in each case: First, a search for the presumed specific micro-organism in the deep pus and fresh deposit; second, the removal of the calcareous deposit for separate examination. In the search for the specific bacterium a delicate, needle-shaped instrument, bent at the point, was used. It was bent in order to determine the point where the deposit ceased, in order not to pass abruptly its margin and wound the inflamed tissue beyond, and thus liberate blood whose leucocytes might destroy the germs we were in search of, and also to enable us to scrape the upper margin of the deposit, as it would there be the freshest. By this means we were able to reach the place where the germ should be in the greatest quantity and greatest activity. The instrument was first dipped in alcohol and passed through alcohol flame, and then the point was carried lightly along the calcareous surface until the end of the deposit was reached, where, with the utmost caution, it was manipulated so as to secure whatever was there. The instrument was then as carefully withdrawn as it had been inserted, the point being so held that it would not scrape the incrustation. It was from the catch at these several points that the particular cultures were made, and, as can be seen, no contamination, either from blood or the secretions of the mouth, could have been effected. A microscopical examination of the calcareous deposit revealed no bacteria in the centre, but along the outer layer various kinds of micro-organisms, both those normal to the mouth and the common pus-forming variety, were found. In the pus (taken from the deep parts, the location where active destruction of the alveoli was going on) numerous bacteria were found. Cultures were made from the tartar deposit as well as from the pus. Nothing of importance was found in the tartar deposits, but from the pus, after plating carefully in gelatin, in Petri dishes, in seven cases out of the eight a

distinct bacillus, as yet undescribed, was found. To determine definitely the identity of this bacillus it was carried through the regular forms of bacteriological examination, raised in colonies, inoculated into gelatin, agar-agar, and blood-serum. In the gelatin plates colonies were developed in three or four days, which were characterized by an irregular margin, somewhat oval in shape, and raised, similar to a vesicle, upon the surface. In a few days this vesicle became a membrane and the gelatin was liquefied.

The general characteristics of this bacillus are these: In gelatin it is a very short, round bacillus, slightly motile at body temperature, 98.5° F. At ordinary room temperature, 70°, it has but little movement. It is a facultative ærobie, growing either when exposed to the oxygen of the atmosphere or deprived of it. It liquefies gelatin. In agar-agar it forms a brownish coating, but grows readily and freely in this medium. In blood-serum the bacillus seems to take on a stronger growth, appears in chain-like forms, as I show you to-night under the microscope, and after ten or twelve days apparently produces spores. As I have said, in gelatin it is a very short bacillus, and is with difficulty distinguished, in its early growth, from the coccus form. It also forms lactic acid. Three experiments have been made on rabbits with the different cultures of this bacillus,—blood-serum, gelatin, and agar-agar. All were made sick, but the one injected with the blood-serum became much more affected than the other two. In twelve days an abscess opened, and, on examination, the pus revealed the same bacillus that had been injected into it. On the sixteenth day the rabbit died, but as this occurred the evening before I left, there was no time to obtain the result of a post-mortem. The other two rabbits are still sickly, stiff in the joints, and indisposed to move, but no abscesses have as yet developed. The inoculations were all made on the same day. This seems to prove that the culture in the blood-serum was much more virulent than those in the other nutrients. It is to be regretted that so far we have been unable to inoculate human beings, but enough has been learned to satisfy us in this at least: That we have a distinct, specific bacillus found in these true cases of pyorrhæa, differentiated as a pure culture: that it is not what is known in bacteriology as a distinct pus-former, and that it is found only in those diseased portions which are not contaminated by septic material; in other words, it is, in my opinion, one of the normal bacteria of the mouth, rendered virulent through some agency which is not yet determined, which, through some trifling trauma-

tism, gains access to the root of a tooth, and slowly and surely progresses in its destructive action until the utility of the tooth is lost. This bacillus is not found along the alveolar edge of the tooth; it is not found in the collections of tartar along the gingival margins; it is found only in the deep-seated pockets where the advance guard of the disease is progressing.

I, therefore, make these claims in regard to pyorrhœa: First, that it is a disease bacterial in origin; and, secondly, that it is a local disease, and that its pathological changes are due to a specific bacillus, and are not due to a constitutional affection. The pus found in pyorrhœa is peculiar and characteristic. It does not contain the virulent streptococci and staphylococci or leptothrix so commonly found in the ordinary ulcerations of the mouth. Where the streptococci are found it is of the brevis or non-pathogenic variety, and the pus contains lime salts, epithelial cells, serum, and the xanthin bases produced by the action of bacteria on proteid substances.

We do not for one moment deny that anything that may lower the vitality of the patient will have its effect upon the alveoli affected with this disease, as it will have its effect on all of the organs of the body. In support of this very claim I would take the liberty of citing a case, showing, as I believe, that anything which impairs the general nutritive functions or vitality of the system increases the virulency of this disease.

In June, 1896, a lady, nearly sixty years of age, came to me with one of the worst cases of pyorrhœa I ever had to contend with. Her incisors were especially bad, the upper ones projecting more than half their length from their sockets, retained only by apical attachments, and so protruding that she could not draw her upper lip over their cutting edges. In time I cured these teeth and had them back in their original position, so that but a line of the cervical margin of the roots was in evidence of the disease that had affected them. Treatment also induced a perfect attachment of the alveolar tissues with the roots. The retaining splint was removed a year ago last June, and they remain rigid in their sockets to-day. So much for the upper teeth. Before I succeeded in making the lower teeth firm, her husband, to whom she was very much attached, was taken seriously ill with heart trouble, and, after lingering a few months, died. The anxiety, loss of rest, and constant care she gave him, followed by trouble in the settlement of the estate, produced a marked general depression of the system, and reduced her weight thirty pounds.

The lower teeth had not up to this time become firm. The new tissue, not having become properly organized under this general depression, was broken down and absorbed, and there was a further recession of the gums. I am now waiting, hoping that the strength which is slowly coming back will revive the energy in the tissues of the alveolar structure, and that the same happy result which was obtained in the upper teeth may appear in the lower.

The disease has the appearance of being infectious, in that it is such a general scourge, and I think that fully ninety per cent. of the adult Anglo-Saxon race have pyorrhœa in some stage of development in one or more of the alveoli. It is common among all races, apparently, in all countries, and among all classes; the rich and the poor, the well-conditioned and the mean, the vegetarian and the meat-eater, the bibulous and the abstemious, the fat and the lean, the robust and the delicate, the strong and the weak, all are affected. Neither does temperament seem to produce immunity, for the nervous, the sanguine, and the phlegmatic suffer it. The strong argument against the theory of infection is that it often happens that only a few teeth, sometimes only one in a whole set, are affected, and continues so to the eliminating period, while the other teeth remain unaffected. If pyorrhœa were infectious, it seems to me that the inception of the disease in one tooth would be followed by the communication of the disease to all the teeth.

We all know that various theories have been offered as to the cause of this disease, and I deem it but right and fair that I should briefly call to your notice the principal ones.

Reeves was the first to bring out the uric acid theory. He claimed that nearly all of the deposits around the teeth were of uric acid origin.

Newland Pedley claimed that pyorrhœa is essentially of constitutional origin, because, as he said, both in man and the lower animals it is found connected with wasting diseases and a depressed condition of the system. Bland Sutton also seemed to claim this, having observed it in cases of rheumatism. Miller is likewise of the opinion that it is constitutional.

Patterson claimed that catarrh of the mucous membrane of the nose and pharynx and pyorrhœa alveolaris are identical. F. J. Bennett holds the same opinion.

Dr. Taft, of Ann Arbor, claims that pyorrhœa arises in consequence of a general disorder of the health. Dr. Peirce claims that it is of uric acid origin. Dr. Rhein, in a paper before the Chicago

Dental Society, at a recent meeting, claimed that it was constitutional.

In a paper read before the Oral Section of the International Medical Congress at Moscow, a well-known writer and colleague of mine, Dr. Talbot, of Chicago, cited in proof of his theory that pyorrhœa was constitutional, the effects both of syphilis and scurvy. Taking the stand that I do, that the disease is bacterial in origin and local in character, I cannot understand by what process of reasoning he connects these diseases with pyorrhœa, unless it appears to him that every pathological condition or traumatic effect on the alveoli which loosens the teeth is pyorrhœa. I mention this in particular, because not a few of our profession have labored under the same general impression, and this argument, syphilis and scurvy, has been commonly used.

Syphilis does not cause a deposit of lime salts on the root of a tooth. That the tooth loosens it is true, but not from the slow destruction of the alveolar process with its soft contents and periodontal membrane, beginning at the cervical margin and eating its way slowly along the shaft of the root towards the apex, but because of the cutting off of all circulation and the consequent death of the surrounding tissues and of the pulp itself, due to syphilitic endarteritis. In pyorrhœa the bony alveolus crumbles away as the disease pervades it; in syphilis the skeleton of the alveolus remains intact and is exfoliated *en masse* or in fragments. In scurvy the same lack of deposits of true alveolar tartar on the roots is shown as in syphilis, and there is a marked difference in the general pathological conditions. Whenever a deposit of true pyorrhœal tartar is found on the root of a syphilitic or scorbutic case, you may rest assured that the incrustation was there before the advent of either syphilis or scurvy.

We will now take up the men who have looked at this disease from a *local* stand-point.

Witzel claims that it is a necrosis of the margin of the alveolus, caused by septic irritation.

Arkövy is of the opinion that the margin of the alveolus is the seat of the primary lesion. He regards it as a suppurative inflammation, beginning at the alveolar margin and spreading to the adjacent tissues.

Magitot believed it to be of parasitic nature.

Malassej and Galippe have made very careful investigations along the lines of the etiology of pyorrhœa. Galippe claims that

this disease without a doubt is of local infectious origin. He bases his opinion upon investigations along local pathological lines.

D. Whittle claims the invariable presence of a micro-organism in pyorrhœa alveolaris, but without any discussion in detail, except that he considers it anaërobic.

Pyorrhœa is of slow formation and progress, requiring from five to twenty-five years or more to complete the entire waste, which results in the elimination of the tooth. This may be due to the lack of energy in the bacteria, or to a peculiar resisting power in the alveolar structure. It is as yet an undetermined point, but from my studies and observations I think the latter is the truth.

It may seem, gentlemen, that I am very dogmatic in what I state as to what I believe to be the causation of this disease, but my opinions are founded on the care and treatment of a great number of cases and a study of this disease extending over very many years. So far treatises on pyorrhœa have been to a great extent speculative individual opinions, founded on more or less observation, oft-times considerably aided by imagination. I believe it is high time that, by the aid of bacteriological research, investigation, and experimentation, we should arrive at positive conclusions, and establish, if we are able, the true nature of this unique disease from which so many are suffering. The field is a large one, too large for a single paper, and we are at present only on the threshold. Yet, in my opinion, any effort, conscientiously made by competent observers, can but aid in the solution of this difficult problem.

Treatment.—The treatment of pyorrhœa involves, first, the removal of every particle of the deposit; secondly, the maintenance of the tooth in rigid position while the process of repair around the root is going on; in other words, until the complete proliferation, attachment, and thorough organization of tissue has been established; and, thirdly, the restoration of attachment between the soft tissues of the alveolus and the root.

The first can only be effected by mechanical means,—that is, by the use of instruments,—because there is no chemical as yet known, or at least that I am aware of, which would dissolve the calcareous deposit that would not also be destructive of the tissues of the alveolus. It is in the thorough removal of these deposits that the secret of success lies in the treatment of this disease, for if but one small speck is left, even though it could be framed in the point of a pin, the irritation and bacterial infection maintained by its presence would, I think, prevent the diseased surfaces from heal-

ing. It is in the detection and removal of these minute points that the skill and delicacy of touch are so much required. Great care should be taken not to wound the tissue, for by doing so you are likely to propagate trouble. The instruments, moreover, should be kept, while in use, in a sterilizing solution, not only to avoid carrying infection in case of laceration, but to protect yourself in case of puncture. I have myself been a victim twice for partially neglecting some of these precautions. Immediately that any fragment has been detached it should be flushed out by some warm antiseptic solution. In fact, before attempting to introduce a scaler, every pocket of pus should be well syringed out with some antiseptic. After the calculus has been removed the pus-pocket should be flooded with warm lactic acid, full strength, care being taken that it does not run over the margin of the pocket, on account of its very irritating nature. This can be accomplished by the careful use of absorbent cotton. The purpose of using this acid is to induce union between the soft alveolar structures and the substance of the root of the tooth. It seems to effect this union by destroying whatever necrotic tissue there may be in the sac or pocket, removing the surface of the pocket and the minute plugs which close up the mouths of the canaliculi, thereby exposing the delicate endosteal lining of the walls of these microscopic canals, and stimulating all surfaces to the proliferation of their characteristic tissue. It is my belief that the nature of this attachment between the soft tissues of the alveolar wall and the root of the tooth is similar to, while it may not be identical with, the tissues which existed before the invasion of the disease that caused their separation.

Lactic acid does not seem to act chemically on the calculus. I was led to use this acid in the expectation that it would dissolve whatever minute particles might escape the scaler, knowing that it had a strong affinity for lime salts; but after I had used it for some time I determined to make a test-tube experiment, and found that at the normal temperature of the human body a piece of tartar immersed in a vial of pure lactic acid, at the end of three months, had not diminished appreciably in size. I, therefore, discarded it for a time as a useless and deceiving agent. Later on I observed, clinically, that in all the cases in which I had used this acid the gum tissue was firmly attached to the root of the tooth, an effect which I had not been able to obtain by the use of any other agent, with the exception possibly of liquor ammoniæ fortior. I then realized the true nature of the action of this acid in these cases, and since that

time it has been the one agent that I have used in the treatment of the disease, after the removal of the calculus. In further proof of the wonderful effect of this acid in stimulating granulations or proliferation of the gum tissue, I will take the liberty of citing a case: It is that of Mr. C. I had cured this gentleman of pyorrhœa, but his lower teeth were still in the embrace of ligatures waiting for them to become rigid, when he suffered from an attack of asthma complicated with other organic disturbances. One day last January he rushed into my office exclaiming, "Look, doctor, what has happened?" To my astonishment and dismay, I found, on opening his mouth, that the labial and lingual walls of the gum were entirely detached, and the interdental tissues or septa, both hard and soft, and the alveolar bone, two-thirds of the way down, were entirely gone, so that when the lip was pulled forward and the tongue retracted the teeth stood, or rather leaned, in all directions, simply being held by their apical attachment. I then ligated the teeth and held them in proper position, cleaned the roots thoroughly, rubbed them and the gums with lactic acid, and cautioned him to keep the tongue and lower lip in perfect repose for at least forty-eight hours. At the end of that time I found, on examination, that the granulations had filled up the interspaces almost to the cervices of the teeth, and the two walls of gum were bound together by them. When I examined him, two weeks ago, I found the granulations perfectly organized, and no one would have suspected the severe lesion that had occurred.

And now, gentlemen, thanking you for your kind attention to my paper, I beg leave to present to you for examination a specimen of the bacillus found, shown in blood-serum, under the microscope; also some of the pus taken from the abscess in the rabbit.

For the information in regard to the opinions of the gentlemen quoted in this paper, I am chiefly indebted to the work of our distinguished countryman and colleague, Professor W. D. Miller, of Berlin, "*Micro-Organisms of the Human Mouth.*"

GOUT.¹

BY JAY F. SCHAMBERG, A.B., M.D., PHILADELPHIA.

THE modern term gout was first employed in the thirteenth century by Radulphus or Rudolph. It is derived from the Latin word *gutta*, which means drop, for it was supposed that the peccant humors that gave rise to gout filtered drop by drop into the joints. The French have maintained the identity of these two words, so that *la goutte* means both gout and a drop.

Gout is a disease that traces its origin far back to the beginning of history. We read in the Bible that Asa, the great-grandson of Solomon, who reigned nine hundred years before the present era, was a victim of this malady. The twenty-third verse of the fifteenth chapter of I. Kings says, "Nevertheless in the time of his old age he was diseased in his feet;" and later, in II. Chronicles, xvi. 12, "And Asa in the thirty and ninth year of his reign was diseased in his feet, until his disease was exceeding great: yet in his disease he sought not to the Lord, but to the physicians." It is evident that the latter were not able to greatly prolong his life, for the following verse reads, "And Asa slept with his fathers, and died in the one and fortieth year of his reign."

The indolence, licentiousness, and intemperance that occurred at the time of the Roman decadence were favorable factors for the development of this disease. Seneca complains of the luxury that debauched the imperial Romans, so that even the ladies of the court were bald and fat and gouty as a result of their earnest devotion to Venus and Bacchus. From the beginning of English history to the present day there are few prominent men of Great Britain who have not suffered from the pangs of this great arch-enemy of luxury. Even the illustrious Sydenham, whose sound observations did much to clarify the obscurity that had surrounded this disease, had in his own person excellent clinical material for study. Indeed, he ultimately died of an acute attack of gout. And in recent years the valuable researches of Haig were primarily undertaken in a tedious but finally successful endeavor to rid himself of one-sided headaches to which he had been subject for years, and which he discovered to be of gouty origin.

A tremendous amount of literature has been written about the

¹ Read before the Academy of Stomatology, March 28, 1899.

nature and ultimate causes of gout, and yet at the present time there are many points in its chemistry and pathology upon which it is hazardous to dogmatize. There is much conflicting evidence at hand, the fruit of years of labor on the part of medical scientists. There is, however, one fundamental fact upon which all are in accord,—namely, that gout is the result of an excessive amount of the salts of uric acid in the blood. This has been as indubitably proven as any fact in medicine. The origin of uric acid and the cause of its precipitation in the tissues are points which have not been so satisfactorily settled.

1. Garrod claims that an acute attack of gout is invariably produced by an excess of uric acid in the blood, due to an increased formation and to a greatly decreased elimination. Also that the inflammation is caused by the deposition in the joints of urate of sodium.

2. Haig contends that there is a diminished alkalinity of the blood, and that the latter cannot therefore hold the uric acid in solution, so that it is deposited in the form of urates. He dissents from the view that an excess of uric acid is formed.

3. Ebstein presupposes a necrotic condition of the cartilages of joints due to the presence of dissolved urates, and believes that this invites the deposition of crystals of urates from a blood surcharged with uric acid.

4. The recent experiments of Luff have thrown considerable light upon the subject. In the Goulstonian lectures, delivered before the Royal College of Physicians of London, he formulated the following conclusions:

1. Uric acid is not normally present in the blood of man.
2. Uric acid is normally produced only in the kidneys.
3. Uric acid is normally formed from urea, probably by a conjugation of that substance with glycocin in the kidneys.
4. Uric acid is present in the blood in gout as the soluble sodium quadrurate. It is deposited from the blood as the sodium biurate.
5. The presence of uric acid in the blood is due to deficient excretion by the kidneys, and to subsequent absorption from the kidneys into the blood.
6. Gout is probably always preceded by some affection of the kidneys, functional or organic, which interferes with the proper excretion of uric acid. The probable seat of the kidney affection giving rise to gout is in the epithelium of the convoluted tubules.

7. In certain blood-diseases and disorders, accompanied by leucocytosis, uric acid is formed within the system from nuclein. In such circumstances it passes at once into the blood and is rapidly eliminated by the kidneys.

Luff's experiments controvert certain long-cherished theories concerning the chemistry of gout. It has heretofore been commonly asserted that the production of uric acid was an intermediate stage in the final formation of urea. If Luff's conclusions are true, then the reverse is the case,—namely, that uric acid is an ultimate product formed from the union of urea and glycocin, which is a substance elaborated in the liver. This view had been previously maintained by Sir Alfred Garrod and Sir William Roberts. These gentlemen, furthermore, believed that the accumulation of uric acid in the blood of gouty patients is due to deficient excretion rather than to increased production. Sir Alfred Garrod holds the view that among the causes exciting a gouty fit is a functional failure on the part of the kidneys. In chronic gout this functional failure is followed by structural changes in the kidneys.

The primary pathological cause of gout then is, according to Garrod, Roberts, and Luff, a defective capacity of the kidneys for the elimination of uric acid. Levison states that gout cannot be developed unless a primary renal lesion is present, and that this is almost invariably of the nature of an interstitial change.

In what manner does uric acid produce the symptoms of gout? The probabilities are that the various symptoms are directly attributable to the mechanical irritation produced by the deposition of crystals of the biurate of sodium. In the case of articular gout, the crystals present in the cartilages of joints give rise to inflammation and subsequently to degenerative changes. In the case of visceral gout, there is good reason to believe that the various symptoms are in a large measure due also to the mechanical effect of the uratic shower. The mere presence of uric acid in the blood does not seem to injuriously affect the organism. Immediately preceding an attack of gout, the patient usually enjoys excellent health. Again, in leukaemia and other diseases in which leucocytosis is present, uric acid is found in the blood, but it is rapidly eliminated and does no harm. It is its precipitation in the tissues and organs that is productive of the morbid phenomena of the disease.

After death we find that the cartilages and synovial membranes of joints are infiltrated with a chalky material which is fluid in its

earlier state, but which later contains crystalline masses. The periosteum is frequently infiltrated with urates, but the bones, although they may be extensively diseased, remain free from the deposition. Sometimes post-mortem examination reveals uratic deposit in joints that had never given clinical evidences of this condition during the life of the patient. Uratic deposits are frequently found, in addition, in bursæ and in the subcutaneous connective tissue. They have also been discovered in the valves of the heart, the cartilages of the larynx, in the liver, kidneys, brain, and other organs.

Etiology.—Among the various factors that give rise to gout, heredity occupies a position of prominence. Garrod states that “more than one-half of all gouty patients can distinctly trace their ailment to an inherited taint.” Paternal transmission of the disease is much more common than perpetuation through the mother.

Articular gout is overwhelmingly more frequent in men than in women. Out of six hundred and forty-eight cases reported, but thirty-two were females.

The character and quantity of food are factors of the greatest importance. Excesses in both eating and drinking may be set down as among the most potent of all of the causes of gout. The nitrogenized foods are those that are most harmful, the chief offender, of course, being meat. It is popularly believed that butcher's meat is much more injurious than the flesh of fowl. This is erroneous. Butcher's meat contains about nineteen per cent. of albuminoid matter, whereas fowl contains twenty per cent. and game twenty-two per cent. Fish comes next with seventeen per cent.; eggs, thirteen per cent.; oatmeal, twelve per cent.; bread, eight per cent.; rice and green peas, six per cent. Milk contains but four per cent., and green vegetables and fruits from one-half to two per cent. The amount of food ingested is an important element to be taken into consideration. It is evident that one might partake of the most highly nitrogenized foods provided the quantities were sufficiently small. For instance, cheese contains thirty per cent. of albuminoid matter, yet in the quantity usually eaten it is not potent for harm. Haig says that any one who indulges in meat twice a day, and in addition partakes of wine or malted liquor, may confidently expect to be gouty when he reaches the age of forty or forty-five.

From the remotest antiquity the deleterious influence of wine

and other alcoholic beverages has been commented upon. It is not by virtue of the alcohol contained in these drinks, nor even because of their acidity, that their baneful effect is exerted. The gout inducing properties of wines seem to be dependent upon the effect they exert upon liver metabolism and consequently upon the production of glyecoin. The heavier wines, such as port, sherry, and Madeira, head the list of gout-determining wines. Considerably less injurious are Burgundy and Champagne. Least detrimental are claret, hock, and Moselle. The distilled liquors, such as brandy and whiskey, have comparatively little gout-inducing influence, although their alcoholic percentage is, of course, extremely high. It is not alcoholism but gluttony that calls gout into existence. For this reason the inordinate use of the malt liquors is particularly apt to give rise to gout. The moderate price of beer, porter, and ale enables the masses to use them in extraordinary quantities. The watermen who raise ballast from the Thames are frequently afflicted with what is called "poor man's gout," which is due to the prodigious amounts of malt of which they dispose. Budd states that twelve quarts of porter in a day is not an uncommon average. Those of you who have sojourned in small university towns in Germany are familiar with the enormous beer-drinking capacity of the German students. To imbibe fifty or sixty "krüge" during the course of an evening is but an achievement of mediocrity. In whiskey-drinking Scotland and potato-eating Ireland gout is rare as compared with malt-consuming England and Germany. In the United States gout occurs almost solely among the rich and luxury-loving element of the population. Another not infrequent etiologic factor in the production of gout is lead-poisoning. Garrod found that thirty per cent. of the hospital cases had been painters or workers in lead. Not improbably it is through the injurious effect of lead on the kidneys that gout is thus produced.

Symptomatology.—When one glances over the long array of symptoms that gout is convicted of producing, one is apt to remark, "Verily, thou hast enumerated all the diseases to which flesh is heir." And yet this interminable list is no exaggeration. It is not necessary to have one's big toe swathed in bandages nor one's fingers embellished with chalk-stones in order to admit the existence of gout. It has subtler manifestations which are capable of causing the diagnostician much difficulty. The classic attack of gout is familiar to all. The patient, after experiencing pro-

dromal cramp-like contractions of the calf, is suddenly seized, usually in the early hours of the morning, with violent pain in the metatarso-phalangeal articulation of the great toe, which subsequently becomes reddened, hot, shining, and swollen. The body temperature rises to 102° or 103° F. After a few hours of intolerable suffering, there occurs an abatement of the pain and fever, the patient usually lapsing into a peaceful slumber. During the day the patient is apt to feel easier, but with the oncoming of the night there occurs an aggravation of the pain, until the total subsidence of the attack at the end of several days or a week. These so-called fits of gout recur from time to time, the intervals of freedom varying according to the mode of living of the patient. After several such attacks the disease arrives at its chronic stage. Other joints than the great toe then become involved. Their order of frequency is as follows: the heels, the small joints of the hands, the ankles and wrists, the knees and elbows, and, finally and rarely, the hips and shoulders. These joints are apt to become stiffened, ankylosed, and deformed through the gouty deposit and the subsequent inflammation. Frequently chalky concretions are visible around the joints chiefly of the hands. They are also not infrequently present upon the helix of the ear and sometimes upon the eyelids. These nodules may make their exit through ulceration of the overlying skin.

The description just given is that of articular or regular gout. There is little difficulty in diagnosing the disease when it appears in this frank form. Frequently, however, it assumes various guises, implicating the heart, kidneys, nerves, respiratory or digestive tract. Such manifestations, which are termed irregular gout, are common in those who inherit the gouty diathesis.

Disorders of the stomach and intestines are commonly observed in gout. The most prominent symptoms are epigastric pain, a sense of distention after eating, acid eructations, and frequently loss of appetite amounting in some cases to actual disgust for food. Occasionally there are violent cramps, vomiting, nausea, and diarrhoea. It is manifest that there is nothing distinctive about these symptoms. They are evidence of the existence of one or another form of dyspepsia. Clinical observers, however, have noted that many of these patients are, in advanced life, attacked with articular gout, the gastric and intestinal symptoms then suddenly disappearing. We have in this proof that the digestive and the articular

disorders are simply interchangeable phases of the same diseased process.

The heart and vascular system are often disturbed in gout. Increase of uric acid in the blood is apt to produce high arterial tension, hypertrophy of the heart, and later arterio-sclerosis and angina pectoris.

Chronic bronchitis and asthma have long been known to be frequently associated with gout.

Eczema, psoriasis, and certain other skin affections are commonly observed in patients with the uric acid habit.

It is but natural that the urinary tract, being the chief eliminatory avenue, should suffer in this disease. In many cases the irritation of the kidney by the excess of urates leads insidiously to chronic interstitial nephritis known as the gouty kidney. Deposition of the urates in the kidneys may lead to the formation of calculi, and it is here to be noted that the uric acid stone is by far the most common variety of both the renal and the vesical calculus. Painful and frequent urination occurs in a certain number of lithæmic sufferers, and burning at the neck of the bladder and at the urinary meatus are among the commonplaces of practice.

The nervous system does not remain free from the encroachments of the uric acid disorder. Headache, especially migraine, not infrequently alternates with joint pains. Haig was able to produce attacks of migraine in himself at will, by resort to an exclusive meat diet for several days. Mental disturbances, such as depression of spirits, melancholia, hypochondria, and excessive irritability, are not among the rarities of experience. Neuralgias of the greatest obstinacy and severity are unfortunately common consequences of gout. They resemble the evolution of articular gout in their paroxysmal character and their tendency to recurrence. First in frequency is sciatica, which may occur as a simple neuralgia or an uncompromising neuritis. The next most frequent nerve attacked is the trifacial and its various branches.

In addition to the diseases above mentioned, gout has numerous morbid affinities. That gall-stone bears a definite relation to gout is proved by the frequency with which this condition is found in individuals of gouty ancestry. An intimate relation between gout and diabetes long ago attracted the attention of physicians. Both diseases occur in florid, corpulent subjects who are great eaters and of inactive habits. Obesity is another morbid condition that is closely affiliated with gout. The children of gouty patients are

apt to be fat, and, on the other hand, the offspring of the obese are prone to develop gout. Excessive corpulence is by no means always due to gormandism, but is dependent upon certain deeply rooted nutritional errors peculiar to some constitutions.

There is another disease that I desire to touch upon. It is one, however, with which you are all much more familiar than I am. For my information upon the subject I am entirely indebted to the valuable articles written by dental practitioners of this city. The affection is pyorrhœa alveolaris of constitutional origin. And at this juncture I desire to congratulate you all upon the masterly scientific work that has been done in connection with this disease. Its recognition as one of the manifestations of gout reflects the greatest credit upon the dental profession, and particularly upon those members of the profession of this city who have by their close observation and clear judgment divined its true nature. Such work as this will force the profession at large to recognize dental medicine as a legitimate branch of the great healing art. I am sorry to say that in medical works on gout there is a surprising absence of allusion to this form of the disease. Occurring, as I understand it frequently does, before more striking evidences of gout are present, it constitutes a most valuable index of the underlying blood dyscrasia. In this manner its importance as a diagnostic clue in the detection of latent phases of this disease cannot be over-estimated. From a pathological point of view pyorrhœa alveolaris is strikingly analogous to articular gout. In an attack of gout there occurs a deposit of uratic salts in the cartilage and synovial membranes of the joint, followed by inflammation and subsequent degenerative changes. In pyorrhœa the joint affected is the dento-alveolar articulation, with the precipitation of the uratic crystals in the pericemental membrane. Inflammation then occurs, the subsequent changes being only modified by the different environment. There is another dental condition that sometimes occurs in *gout*. Flint says that Graves calls attention to the habit of grinding teeth as peculiar to cases of gout. The habit proceeds from an uneasy sensation in the teeth, which is in this way momentarily relieved. This symptom occurs more frequently in adults, and the teeth may be considerably worn down by attrition.

Treatment.—As far as gout is concerned, it is unfortunate that individuals have no choice in the selection of their parents, for the sins of gouty fathers are certainly visited upon their children. Prophylaxis is an all-important feature of the treatment, and the

key-note of prevention is moderation in eating and drinking. The Germans may laugh, as they do, at the water-drinking Americans, and cynically remark that water is fit only for washing; we may answer that it is the best means of human irrigation, and that water-drinkers seldom acquire gout. Adherence to the use of nature's beverages, milk and water, would save many devotees of Bacchus from chronic invalidism and untimely death. As has been already stated, the least injurious of alcoholic beverages are claret, Rhine wines, and brandy and whiskey. Used in moderation these are not productive of great harm. Both a quantitative and qualitative regulation of diet is necessary in the treatment of gout. It is not necessary to absolutely interdict the use of meat, but the quantity should be restricted to a small portion once a day. Fish may often be substituted for red meat with advantage. The vegetables which are to be avoided by gouty patients are asparagus, tomatoes, and green peas. Rhubarb had better also be eschewed. Luff has experimentally proved that the solubility of the biurate of sodium is markedly increased by the mineral constituents of certain vegetables, particularly spinach, Brussels sprouts, French beans, winter cabbage, turnips, and celery. Patients should be encouraged to freely partake of these articles. The starchy and saccharine foods are often poorly borne by the gouty, so it is advisable that these classes of food-stuffs should be used in moderation.

The excessive use of common table-salt lessens the solubility of sodium biurate, and it should therefore be employed as sparingly as is compatible with the palatability of the food eaten. The ordinary fruits may be added to the dietary without disadvantage.

Proper exercise graduated to the physical make-up of the patient is essential. Even though gout be explained upon a theory other than suboxidation, it is evident that by stimulating elimination through the sweat-glands much of the burden of blood purification is taken from the kidneys. Gout is particularly apt to develop in those who are physically indolent, who lead sedentary lives, and who do not properly get rid of the waste products in the system.

Medicinal Treatment.—Mineral waters have been so largely used in the treatment of the uric acid diathesis that the industry of manufacturing natural mineral waters has been stimulated to a profitable degree. It appears from recent research that those waters containing considerable proportions of the sodium salts had better not be employed. The potassium and lithium waters in

addition to being alkaline, have a distinct diuretic influence which is most desirable. Pure unmedicated spring water is in itself capable of accomplishing great good. The total amount of fluid taken in the course of twenty-four hours should not be less than a gallon, most of which should be imbibed between the meals.

Among drugs the oldest and most efficient is colchicum. It is believed to have been used by the Greeks and Arabians under the name of hermodactylus. Most of the patent preparations for gout contain this as their essential ingredient. How colchicum does good in gout is not definitely known, but many years of experience have testified to its unimpeachable efficiency. In acute attacks of gout the wine of the root of colchicum may be administered in ten- to twenty-minim doses every few hours until nausea or slight purging is produced. In chronic gout ten drops three times a day is the average dosage. The salicylates are frequently employed, but Luff believes them to do harm.

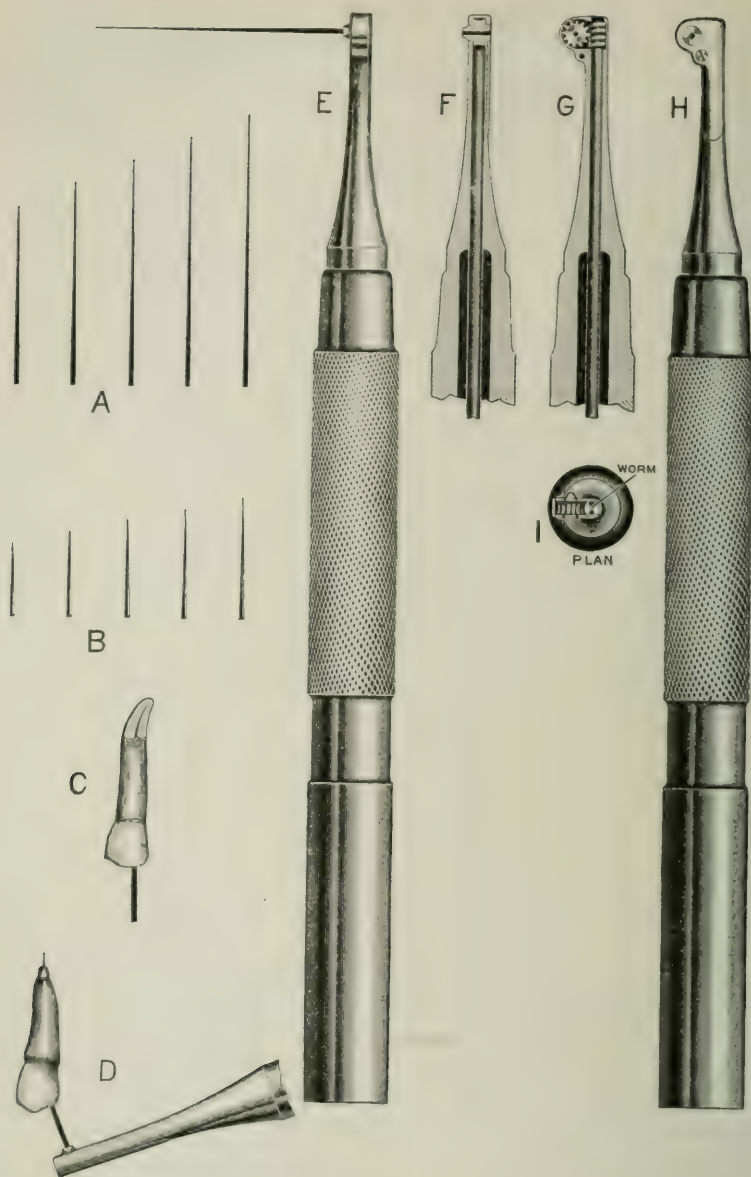
Effervescent tablets of citrate of lithia are now extensively employed, and by their use one may manufacture in a few minutes an excellent and inexpensive lithia water. Various combinations of remedies have been from time to time recommended, but the necessary brevity of this paper has prevented more than a general outline of the therapeutic measures to be employed.

DENTAL NOTES.

BY WILLIAM ROLLINS.

NOTE I. SMALL ROOT-CANALS.

HAVING studied my profession for twenty-five years, I have naturally found some things of use to me which I propose to describe in two or three short notes. As I do not believe in patents, some of my inventions are going about as orphans, and one, my end-cutting bur, its humble origin conveniently forgotten, has been adopted by a great house, and received a new—and, perhaps, considering some facts I shall later give about it—prophetic name,—the revelation bur. In this note, however, I describe instruments for root-canals, experience having shown me that such canals, when of small diameter in the molar teeth, are not always well filled. This is due to several causes. If the cutting instrument is turned



THE A-W-L ROOT CANAL INSTRUMENTS.

DESIGNED BY WILLIAM ROLLINS.

by hand, it is difficult to secure room for efficient use. If used in the engine, there is the same difficulty, on account of the large size of the hand-piece which obstructs the view, and takes up most of the room which should be devoted to the instrument. In addition, the high speed, about twenty-five hundred to three thousand revolutions a minute, is almost sure to break the instrument when it is of small diameter.

I have tried to overcome some of the difficulties by means of the instrument shown in the plate. The hand-piece is arranged to attach by a sliding joint to some form of the Bonwill wrist-joint, which is the only satisfactory connecting link between the motive power and the revolving instrument used in dentistry. The object of the construction shown is to make a small instrument which will not occupy valuable space in the mouth and will run at a slow speed. The worm-gear naturally adapts itself to these conditions, so I have used it for the first time in a dental hand-piece. It is usually possible to run a dental engine as slowly as half speed, about twelve hundred revolutions a minute. This enables the pulp-canal hand-piece point to turn only one hundred times a minute, at which speed a fine instrument, properly made, should not break, if it is new.

The cutting tools are worth a short description. They are made of mild steel without being tempered by fire. When I began to use this kind of an instrument, it was not known that an untempered instrument would cut dentine satisfactorily, but in trying to overcome the constant breaking of the usual instruments in the canals, I found that if a suitable steel were drawn and hammered properly, it became hard enough and tough beyond belief. The power of a hammer is marvellous; it is the most wonderful tool discovered by man. No wonder Longfellow said, in *Evangeline*,—

“For since the birth of time throughout all ages and nations,
Has the craft of the smith been held in repute by the people.”

There is no more remarkable development of the hammer than a modern swaging machine, like the Dayton, which is capable of delivering on one of the blanks for my little pulp-canal instruments ten thousand blows a minute, forming it into the required taper and leaving it stiff, tough, and sufficiently hard. Before leaving the description of the instruments, I mention a practice which years of experience have shown to be sound,—that of never using any pulp instrument in more than one tooth. Make the in-

struments at home, so their quality may be assured and their cost low. As the platinum points shown in the plate correspond in size with the drills, all that is required for filling is to cut a little from the ends so they shall not protrude, and then press them into place, covering the larger end with filling. I have found by experience that it is not necessary with fine canals to use cement or other substance about the wires, which, therefore, can be withdrawn, if necessary, for treatment of the root.

Two extracted teeth are shown in the plate. One of them illustrates the ease with which these instruments, when revolving, can follow a canal with a double curve, even going out through the end opening. The other shows a root partly cut away to prove that a considerable bend at the apex does not prevent the canal from being followed to within a short distance of the end. The fact that the instrument has passed through the apex may be indicated by a slight prick. A mark can then be placed on the shank. When withdrawn the point may be a little cut off and the wire for the filling made to correspond. I have rarely had trouble from an instrument which seemed to prick. Usually I believe there is a little life in the fragment of pulp which occupies the extreme end of the canal, and the prick comes from touching this. One can assure himself of this by an X-ray examination, for which purpose the camera I figured in this journal for 1896 is useful. Suitable tubes which give sharp pictures of small objects may be found described in my notes on X-rays in the *Electrical Review* for 1897, 1898, 1899.

SECURING LOOSE TEETH AFFECTED WITH PYORRHŒA.¹

BY DR. L. C. BRYAN, BASEL, SWITZERLAND.

THERE are often cases of pyorrhœa loosening lower incisor teeth, and various methods have been recommended for securing these in place and for strengthening them. The usual method of procedure is to cut a groove in the cutting edge of the teeth and insert a gold bar, with little pins soldered to the bar and running into the point of each tooth. These are secured with cement or gold filling round the edges. The first difficulty in this method is

¹ Read before The New York Institute of Stomatology, April 4, 1899.



as regards the bite, which is almost always close, and the teeth have to be cut to make room for the bar. The next objection is the serious one of disfigurement of the mouth, with a shining gold bar extending along the cutting edge of the incisors.

Having a case some years ago of this kind of diseased teeth, where the two centrals were loosened by a standing discharge of pus and were about to be extracted, I decided, instead of doing this, to fit a gold band onto a pure gold plate around the two centrals and the two laterals, in shape something like a double figure eight, extending from the gum margin up on the enamel of the tooth, but not so high as to show in the natural movement of the lips. This band of thin gold was fitted around the necks of the teeth, and with physie forceps was drawn in front and back so as to almost touch between the teeth. Pure gold wire was cut and bent into U-shaped staples. One end of the wire was drawn over the gold plate and the other end under it, extending far enough forward towards the lips to bend the two ends together, and have them just meet when cut off.

The accompanying model is an illustration of a case where three teeth were banded together in this way. In this it will be seen that the wire has been pulled as far as possible forward, passing up at the back in the groove in the plate between each pair of teeth, the ends in front being bent up in a groove in the plate in front from above and below, and cut off so as to meet in the centre. It is necessary to use pure gold for this wire, as any alloy would be somewhat springy, and would not remain where placed.

Before the final bending of this wire the band and wire are fitted on accurately, the wires being then removed.

The gold plate is bent out again from the teeth, and everything being kept dry either with the rubber dam or by painting the margin of the gum with iodine, soft cement is forced between the teeth and the whole inside of the plate, so that when the wires are again put in place and drawn tight the superfluous cement is pressed out above and below the band, and perfectly secures it in position. Lined as it is with cement round the necks of the teeth, they are protected as perfectly as with a gold crown filled with cement before setting would be.

The case here illustrated has had the band in use for four years, and the teeth are perfectly in place, and have grown firm, so far, at least, as pyorrhœa teeth can be firm, and the discharge has long ceased. However, if the band were removed the teeth might still

be found to be loose, though the gums have grown up to the band and are firm and healthy.

This gold band is worn with the greatest comfort, tartar from the sublingual glands filling in spaces from the back and requiring to be cleaned and polished, as the other lower incisors are, with scalers.

This method had given so much satisfaction that I have used it in several cases where I have removed gold bars and replaced them with this invisible gold band. By reference to the model the *modus operandi* will be clearly seen, and many points not clear in the text will be elucidated. The band I set with Weston's insoluble cement, which I also use for setting crowns instead of Weston's crown cement. There may be other cements equally good for this purpose and for setting crowns, but owing to the fact of it being possible to use this at a creamy consistency and of its setting under water or saliva, and having cases where particles of this cement have remained undissolved about the edges of crowns after years of exposure to the serum and fluids exuded from the gum margin, I have used Weston's cement in preference to any other.

Just here let me say that our profession would make a good deal more progress if dentists were a little less fearful of publishing their experiences and of recommending articles which have proved successful in their hands, and also publicly condemning those which have been found wanting.

PYORRHOEA ALVEOLARIS.¹

BY FREDERICK W. ALLEN, UNIVERSITY OF PENNSYLVANIA.

CASE.—Miss Mary Q., aged forty-one, presented herself at clinic for treatment. Patient was of a nervo-bilious temperament.

Diagnosis.—It was evident that the patient was affected by pyorrhœa. The teeth were generally involved, pus being noticeable

¹ This and the following cases of treatment of pyorrhœa alveolaris are published with the view of answering the question, so frequently made, "Can pyorrhœa be cured?" Each member of the senior class of the Dental Department of the University of Pennsylvania was required to treat a pathological case, and was given full liberty to use his own judgment in the therapeutical management. The cases were all registered and examined from time to time by the teachers in charge.—ED.

at the gingival borders, and upon pressure there was a considerable discharge. The gums were tumid, and the lower anterior centrals and laterals were denuded to half the length of the roots, the teeth being quite loose. The upper centrals, while not denuded of their gingivæ, had pus-pockets extending nearly to their apices. There were pockets on nearly all the teeth, and generally containing darkened serumal calculi, firmly adherent to the roots. The mouth was in a very unhygienic condition, and the offensive odor peculiar to such cases was especially noticeable.

Prognosis.—Was favorable, depending upon the successful removal of the exciting and predisposing causes.

Treatment.—As the mouth was in a very unclean condition, there being considerable deposits of salivary calculi upon the teeth, the tongue heavily coated, the breath was made additionally offensive by a gastric condition. The patient was given a mouth-wash of permanganate of potassium and water. This was used until the mucous membrane of the mouth took on a dark-brown color. Then a wash of hydrogen dioxide was given, diluted with three times its bulk in water, to which was added sufficient soda bicarbonate to neutralize the preserving acid of the dioxide. These washes softened the deposits upon the teeth, corrected the fetor of the breath, and removed the *débris* from the tongue and mucous membrane. In this way the scaling was performed with less injury to the tissues, and the field of operation was left more desirable for treatment. The teeth were then carefully scaled and polished, and in removing the serumal deposits from the roots of the teeth thin, flexible, Cushing's scalers were used, with the "pushing motion." The pockets and necks of the teeth were syringed with warm water. Then a three-per-cent. solution of hydrogen dioxide was introduced, removing the pus, foreign bodies, micro-organisms, etc. The *débris* was washed out with tepid water. Then a twenty-five-per-cent. solution of sulphuric acid (commercial) was applied to the necks of the teeth and introduced into the pockets by means of Japanese tooth-picks, care being taken to avoid applying the acid to the crowns of the teeth and not to use a surplus. The acid was allowed to remain for about one minute, carbonizing the tissues. It was then neutralized with soda bicarbonate, which produced slight ebullition; the parts were then thoroughly washed out with warm water, and were practically free from germs and all foreign bodies. The pockets were then packed with sulphate of quinine, which not only closed them, acting to prevent reinfection

upon the lower surfaces, but being locally a protoplasmic poison, preventing the emigration of the leucocytes, and being also an anti-septic.

The patient was then dismissed for two days, and given a prescription of

R Hydronaphthol, gr. xv;
Alcoholis,
Aquæ destillatæ, āā ʒi. M.

Sig.—Twenty drops in a tumbler of water. Use twice a day as a mouth-wash.

Upon return the pockets were washed out with hydrogen dioxide and additional quinine packed in, care being taken not to disturb the tissues. After seven days additional treatment was made, and at the end of three weeks new tissue had nearly filled the former pus-pockets, with the exception of the centrals, which were again treated with the sulphuric acid.

Continuing the same treatment of the hydrogen dioxide and quinine, granulations commenced in the lower centrals, and after three months' treatment the teeth were quite firm in their sockets, and in five months new tissue had formed around the necks of the teeth.

The patient was then dismissed, with instructions for the proper care of the mouth, and to continue with the use of the mouth-wash.

Coincident with the removing of the pyorrhœal condition, the patient was relieved of a former gastric condition.

NOTES.—Having previously treated three cases, the patients being older, ranging from fifty to sixty-five years of age, the results were not so favorable. One was treated in connection with a local treatment, together with a large quantity of water, taken daily, together with bitartrate of lithia. This case apparently yielded, although, upon cessation of treatment for six weeks, it returned to the original condition.

In another case the protoiodide of mercury was used, but the condition of the alveolus was such that the teeth could not regain firmness in the jaw. The other case, sixty-five years of age, was, upon further investigation, found to be a case of senile dentine, and a device was made to retain the teeth to a proper time to make an artificial denture.

PYORRHOEA ALVEOLARIS.

BY HARRY F. WHITE, UNIVERSITY OF PENNSYLVANIA.

RECORD of a case which presented itself to me in the clinic during session of 1898-99.

Symptoms.—This person was a woman of about thirty-five years. She wore an upper denture, the only natural teeth remaining being the ten lower anterior teeth. She complained of the gums feeling uncomfortable, and of the teeth being loose, especially the second bicuspid, on left side, and the two central incisors, these teeth being most affected.

The gums were somewhat swollen and inflamed and of a rather dark-purplish color. Pressure along gingival margins caused pus to flow from necks of those teeth most affected. The gums were also receded.

Diagnosis.—My diagnosis was based on the following facts: (a) Inflamed gums; (b) pus flowing from necks; (c) loosened teeth; (d) deposits of tartar on roots; (e) recession of gums.

Cause.—The disease was undoubtedly caused by over-use of the few remaining teeth. This extra strain set up irritation of pericementum and gingivitis, making a culture-pocket for bacteria.

Prognosis.—Without treatment these teeth would have continued to loosen till all were lost, but the prognosis was very favorable with the exception of one bicuspid, which was very loose.

Treatment.—1. First treatment was to thoroughly clean and polish roots of all teeth and to cleanse pockets with hydrogen dioxide.

2. The next was to syringe pockets with warm water and apply a twenty-five-per-cent. solution of sulphuric acid, carried in pockets with cotton on an orange-wood stick. This was left in from three to five minutes, after which bicarbonate of soda was applied to neutralize acid. I then syringed with warm water and packed in sulphate of quinine.

3. A wash was then given consisting of

R Hydronaphthol, gr. xv;
Alcoholis,
Aquæ destillatæ, aa ʒi. M.

Sig.—Twenty drops in glass of water, to be used twice daily.

At each succeeding sitting I saw great improvement. The pockets were cleansed again with warm water and more quinine

packed in. This treatment continued till all the teeth were treated. The patient was seen each day, and three teeth were treated at each sitting.

Have seen patient several times since. The gums are now in perfectly healthy condition. The teeth have tightened in their sockets and appear to be normal.

TREATMENT OF PYORRHOEA ALVEOLARIS.

BY JOHN E. HEYKE, UNIVERSITY OF PENNSYLVANIA.

THE patient, a lady of fifty-nine years of age, had experienced no constitutional disorders for years, except a persistent neuralgia of the face. The gums looked very angry, showing deep recessions around the necks of the teeth, the pockets on the central incisors extending nearly to apex of root. No discharge of pus when pressing the gums. First treatment was given March 28, 1899. All deposits were removed and the parts cleansed with hydrogen dioxide, after which the affected tissues were thoroughly cauterized with a solution of sulphuric acid (twenty per cent.), afterwards neutralizing with sodium bicarbonate and packing the pockets with quinine, to prevent the cicatricial tissue forming from becoming invaded by bacteria. Central incisors were also widely separated.

Patient reported again after two weeks (April 11), when all the teeth affected exhibited considerable improvement, the central incisors not as much as the rest, which can probably be attributed to the lack of lateral support during mastication.

The hydrogen dioxide and quinine treatment were repeated, and, in addition, the central incisors were given a second application of sulphuric acid. The neuralgic pains had by this time disappeared altogether.

At the third visit, one week later, the cuspids and laterals were perfectly tight, and nothing was done to them; central incisors improving, and were treated with hydrogen dioxide and quinine. The fourth treatment was given the following week (April 25), when the central incisors were almost as firm as the rest.

Patient called again on May 2, when she was discharged, after having been advised to keep her teeth perfectly clean and to use a hydronaphthol mouth-wash, morning and night.

PYORRHŒA ALVEOLARIS.

BY TILLO. V. SMITH, UNIVERSITY OF PENNSYLVANIA.

Mrs. R., of Philadelphia. This case came into my hands through the clinic on April 4, 1899. The teeth affected were eight lower anterior (two supernumerary lateral incisors), two upper central incisors, and two upper molars, second and third on each side. The lower teeth were very loose, particularly the lateral incisors, and covered with a salivary deposit. No history of gouty troubles or rheumatism could be obtained. The upper teeth were not so much affected, and readily responded to treatment. The teeth were as thoroughly cleansed as possible near the apex of root, and polished with pumice and chalk. The gums and sockets were then well soaked and washed clean with pyrozone, about three per cent., and an application of sulphuric acid, twenty per cent., made to produce a granulating surface, and the pockets packed with sulphate of quinine. The teeth were also ligatured to allow surgical rest. The mouth gave indications of an acid reaction, and the patient was instructed to spread prepared chalk over the teeth at night, and use a wash composed of hydronaphthol, fifteen grains, alcohol and aquæ destillatæ, one ounce, about a teaspoonful in a half-glass of water, three times a day.

Marked improvement was noted, and the patient very much encouraged and gratified. After several applications of sulphate of quinine the gum tissue seemed to be in an almost normal condition, with the exception of tightening around the teeth. No pus or exudate could be seen. Sulphate of quinine is now occasionally applied, and the mouth-wash used as before, to keep up an aseptic condition and encourage tightening.

The patient from the first marked a degree of comfort which had not been enjoyed for some time.

PYORRHŒA ALVEOLARIS.

BY BURTON F. BISHOP, UNIVERSITY OF PENNSYLVANIA.

THE case which I have decided to present is that of a nurse, resident of Philadelphia, Pa., aged thirty-five years. Temperament, nervous. The patient came to the clinic December 9 for the purpose of having her teeth filled; and upon the first examination I discovered that she was wearing an ill-fitting, partial upper, rubber

denture, to replace the lateral incisor and two bicuspids on the right side of the arch. On removing the denture I found the gums around the cuspid and two molars very much receded, with a large quantity of salivary calculus deposited on lingual surface of the teeth. By pressing upon the gums pus would flow out at their necks. The two molars were very loose, with their palatine roots nearly exposed to the apical foramen, while the cuspid was rather firm in its socket. A peculiar odor also came from the mouth. On using explorers I found that they could be passed under the gums to nearly the apical foramen. My first treatment consisted of removing the salivary calculus by means of scalers. After thoroughly removing this deposit I injected a three-per-cent. solution of hydrogen dioxide to remove the pus. This was washed out with warm water, and a twenty-five-per-cent. solution of sulphuric acid added to produce healthy granulation. The sulphuric acid, after remaining for a minute or two, was neutralized by bicarbonate of soda, and washed out with warm water.

Sulphate of quinine was then packed into the pockets by means of an orange-wood stick sharpened to a thin point. I then instructed the patient to use an antiseptic mouth-wash, which consisted of

R Hydronaphthol, gr. xv ;
Alcoholis,
Aquæ destillatæ, āā ʒi. M.

Sig.—Twenty to thirty drops to a glass of water, to be used three times a day.

On her second return I found the pus-pockets much smaller, teeth firmer in their sockets, and less pus flowing out on pressure. I gave her the treatment described above, with the exception of sulphuric acid, as this would have destroyed the healthy granulation which had already taken place.

The patient returned six times, and at each visit a change for the better was noticeable. At last visit no pus was present, with the gums practically in contact with the teeth.

This disease has been known in the family for three generations.

PYORRHŒA ALVEOLARIS.

BY HAROLD CARDWELL, UNIVERSITY OF PENNSYLVANIA.

PATIENT, Mrs. B., aged fifty-one years, first came to Dental Hall on Wednesday, March 27, 1899. She complained of pain in her lower teeth when eating. Upon examination the six anterior lower teeth, the only remaining ones in her mouth, were found to be very loose, the gums red and inflamed, very large collections of tartar on the lingual aspects of the teeth. Slight exudation of pus from the sockets upon pressure of the gum tissue around the teeth. The patient was in a very bad state of health, having been under the care of a doctor for thirteen years. The case was diagnosed as one of pyorrhœa alveolaris.

Treatment.—The teeth were well scaled, and great care taken to remove all calculi. The sockets of the gums were well washed out with warm water. Hydrogen dioxide was then injected into them. After again washing out with warm water, sulphuric acid, fifty per cent., was gently placed around the teeth and in the pockets with a piece of orange-wood. The acid, after being left in for about a minute, was neutralized with sodium bicarbonate. The pockets were again washed out with warm water, and then well packed with quinine. The patient was told to use the following mouth-wash several times a day, and to keep the teeth clean:

R Hydronaphthol, gr. xv;
 Alcoholis,
 Aquæ destillatæ, aa ʒi. M.

Sig.—Put twenty drops of the above in a tumbler of water, and use as a wash.

Patient was again seen on April 2, 11, 18, and May 2. The pockets were all washed out each time with hydrogen dioxide, packed with quinine, leaving out the acid treatment. The teeth became very much firmer, and the patient had no longer pain on biting with them. The gums assumed their normal position, to a great extent, and seemed to be in a healthy state. Patient was dismissed, and told to keep on with the mouth-wash. The result was satisfactory, considering the age and condition of patient.

TREATMENT OF PYORRŒA IN DETAIL.

NUMBER.	HISTORY.	NUMBER OF TEETH.	CONDITION OF GINGIVÆ.	EXCRETION.	DEPOSIT.	TREATMENT.						RESULT.	SUBSEQUENT (COMPLICATIONS).
						1	2	3	4	5	6		
1 25	None.	10	Hyperemic.	Pus.	Calculi.	Scal.	Hydrogen diox.	Sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
2 30	None.	.....	Pockets.	None.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
3 47	None.	13	Hyperemic.	None.	Calculi.	Scal.	Hydrogen diox.	25% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
4 35	None.	32	Teeth loose.	None.	Calculi.	Scal.	Hydrogen diox.	50% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
5 35	None.	3	Spongy.	None.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
6 35	None.	32	Hyperemic.	None.	None.	.....	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
7 35	None.	5	Receded.	None.	Calculi.	Scal.	Hydrogen diox.	25% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	No report.
8 30	None.	4	Pockets.	None.	Calculi.	Scal.	Hydrogen diox.	25% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
9 41	None.	All teeth.	Receded.	None.	Calculi.	Scal.	Hydrogen diox.	50% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
10 51	Bad health.	6	No report.	None.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
11 ..	None.	14	Teeth loose.	None.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Partially.	None.
12 46	None.	4	Teeth loose.	None.	On one tooth.	.....	Hydrogen diox.	25% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
13 42	None.	4	Receded.	None.	Calculi.	Scal.	Hydrogen diox.	50% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
14 40	None.	Several.	Teeth loose.	None.	Calculi.	Scal.	Trichloroacetic acid.	25% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
15 40	None.	All.	Receded, all teeth.	None.	Calculi.	Scal.	Hydrogen diox.	40% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
16 24	Gout.	Lower teeth.	.....	None.	Calculi.	Scal.	Hydrogen diox.	No report.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	No result.	No report.
17 30	Gout.	All teeth.	Receded.	None.	None.	.....	Hydrogen diox.	25% sul. acid.	Soda bicarb.	Protoiodide of mercury.	Hydronaphthol.	Cured.	None.
18 30	None.	6	Receded.	Pus.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Not used.	Partially.	No report.
19 37	None.	Several.	Receded.	Pus.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
20 30	None.	All.	Receded.	Pus.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
21 33	Rheumatic.	All.	Receded.	Pus.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Partially.	No report.
22 29	None.	All.	Receded.	Pus.	Calculi.	Scal.	Hydrogen diox.	20% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
23 ..	None.	3	Receded.	Pus.	Calculi.	Scal.	Hydrogen diox.	25% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
24 45	None.	All.	Hyperemic.	Pus.	Calculi.	Scal.	Hydrogen diox.	25% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.
25 ..	None.	All.	.....	Pus.	Calculi.	Scal.	Hydrogen diox.	25% sul. acid.	Soda bicarb.	Sul. quinine.	Hydronaphthol.	Cured.	None.

REMARKS.

The foregoing presentation has been given for reasons stated (see note), and with the hope that some who have been at a loss in the treatment of these cases may be benefited by the enlarged experience made possible by a crowded infirmary.

It will be observed that in the tabulated cases that several have been complicated with systemic conditions supposed to be particularly antagonistic to local treatment,—rheumatism and gout. All of these have yielded to therapeutic treatment, in whole or in part. One of these was from the University Hospital, under care for this special complaint and thoroughly “saturated with uric acid,” to use the expression of the medical attendant.

The pathological cases under care at the Dental Infirmary of the University, as a special test of the ability of the senior class, numbered one hundred and sixty-six, and of these, fifty cases of pyorrhœa were described. In the series of tabulated cases, twenty-five are alone given to avoid the monotony of repetition. Of the balance that were given the treatment described, all were satisfactorily cured, with the exception of three with no result stated, one still under care, and two partially helped.

It will be observed that in cases over sixty years of age the result was not entirely satisfactory. This goes very far to confirm my own view that pyorrhœa alveolaris must be separated into two stages, that occurring prior to that age and that presenting at a subsequent period. The first, according to this, should be classed as pyorrhœa proper, and the latter as senile pyorrhœa. From my observation, senile dentine, or, in other words, calcification of the tubulated structure, means a certain stoppage of nutrition. The tooth becomes a foreign body, and is not amenable to treatment. This must not be regarded as a mere hypothesis, but has been demonstrated by microscopic observation. It is generally manifested in old age, but may occur at a comparatively early period, as it has been observed by myself at thirty-five, and with the same unfortunate results as that following the later period.

The criticism may be made that this report has been prepared by undergraduates. While this is true, it does not lessen the value of the results. Great care was taken to have all pathological cases registered and watched by those in charge, and the largest proportion were seen by myself at various stages.

While it is true that the majority reported were treated after

the method devised by myself, this was not made obligatory, in fact, was not desired, unless the student felt he could accomplish more by this than with other methods.

The plan generally adopted by the operators commended itself to me years ago, and has been repeatedly given to the dental profession, but from the continued complaints that it is impossible to cure pyorrhoea, it is presumed it has not been adopted, or, if used, has not been properly applied.

The use of sulphuric acid as an escharotic in these cases dates back many years. Who was the first to use it is unknown, but Dr. Atkinson certainly advocated it, and it may have originated in his fertile brain. The system adopted by myself included this, because of its positive value if applied properly. From writers upon this subject it is inferred that the aromatic sulphuric acid has been almost universally adopted. The use of this is believed to be a mistake. The strength, about twenty per cent., is not sufficient to accomplish desired results. Hence the commercial, pure as can be procured, is preferred, and reduced to twenty-five, thirty, or even fifty per cent., depending on the case to be treated. The length of time this is permitted to act upon the tissues is important. The usual period is *from one to two minutes*, and then it must be immediately neutralized by an antacid, sodium bicarbonate preferred. The escharotic, whether it be sulphuric acid, trichloroacetic acid, or lactic acid, should not be repeated after the first application until at least ten days have elapsed. Time must be given for healthy granulations, and *these must not be disturbed*. If pus, after this period,—ten days,—should be present, the escharotic may be repeated, not otherwise.

The use of sulphate of quinine has not generally been understood. It has been in my hands, as a local application, one of the most valuable therapeutic agents; indeed, nothing that has been tried has supplanted it in the various gingival inflammations of the oral cavity. The peculiar properties of this agent have been fully explained elsewhere, and it is sufficient to say here that its topical effects have been tested to a degree that warrants its continued use. While satisfied with this agent, it is unquestionably true that there are several others that will answer, in part, the object to be attained by quinine in this disease. Very recently the protoiodide of mercury has been used with good results; one case will be found mentioned in the tabulated statement. It must be evident that the pockets must be closed to the ingress of pathogenic germs for a

limited period to permit natural restoration of tissue, and this agent must be non-irritating and antiseptic in character.

The return of original conditions must be prevented by a continual use of an antiseptic mouth-wash. There is nothing in the whole range of antiseptics to be compared with beta-naphthol, or so-called hydronaphthol. With proper co-operation of the patient there need not be a recurrence of the disease. Indeed, I have never met with it where this care has been observed.

It may simply be a coincidence, but it is worthy of thought that, in one case described, the patient had suffered long from rheumatism, and was then under treatment by her physician for this disease. The treatment given not only effectually cured the pyorrhœa, but all symptoms of rheumatism disappeared, and the medical attendant was dismissed. This is a reversal of the theories held by those who explain pyorrhœa upon the uric acid hypothesis. Indeed, if these cases of rheumatism be accepted as cured by local treatment alone, the theoretical explanations alluded to will require modification, if they are not abandoned altogether.

A careful study of the cases described will enable those who may be interested to follow the course of treatment. *It must be exact to be successful.*

JAMES TRUMAN.



Reports of Society Meetings.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A REGULAR meeting of the Institute was held on Tuesday evening, April 4, 1899, at the office of Dr. C. O. Kimball, 27 West Thirty-eighth Street, the President, Dr. E. A. Bogue, in the chair.

The minutes of the last meeting were read and approved.

SPECIAL BUSINESS.

Dr. R. H. M. Darnbarn.—On account of the very interesting features of this case, especially in connection with your specialty of our profession, I have induced this lady to be present this evening. The affection was diagnosticated by her physician, Dr. Freudenthal, as sarcoma of the antrum; later she was presented at the New York Academy of Medicine, where this diagnosis was confirmed by a number of surgeons present, and the question was there

discussed as to what should best be done. The case was finally sent to me, I being especially interested in this field. The symptoms have only been noticed for about two months. Within a week or two after they were first observed the growth increased so rapidly that it involved surrounding parts, and now the nasal passage on the right side is absolutely air-tight. It has lately encroached on the orbit, from beneath, so as to cause a distinct occurrence of exophthalmos; indeed, it will require an extremely delicate operation to save the eye, and if this were to be postponed many days, I do not think the eye could be saved.

A point of especial interest is that, at the beginning of the symptoms, the neuralgic pains led her to go to her dentist, who extracted five teeth of the upper arch; three of these were from the right side and two from the left. I can hardly see how any reputable dentist could perform such an operation. I think this is a supreme instance of an opportunity thrown away by a dentist (and an opportunity that so many dentists do throw away) in not looking beyond the teeth and their condition, thus neglecting to do their patient the greatest service by calling attention to abnormalities at a time when surgical interference is attended with so much better results than is the case with malignant growths a little later. Dr. Howe, who is with us to-night, will remember an instance in which he took advantage of this opportunity. He had the wisdom to look beyond the teeth, and made a brilliant diagnosis of what proved to be a malignant growth; this was three years ago. I excised the upper jaw in that case, and, as he knows, the patient is still well and free from any recurrence.

To demonstrate the process of bone-softening, which the bony tissue over the antrum has undergone in this case, I will ask the president to pass an ordinary sewing needle through this growth into the antrum. He will find that, instead of there being the densest of dense bone which is found normally over the antrum, he will be able to pass the needle through with very little sense of resistance.

The President.—I find, on passing the needle as directed by Dr. Dawbarn, a condition producing a tactile sensation, very much like a dry sponge. Like cartilage rather than bone in its resistance to the needle thrust.

Dr. Dawbarn.—On Friday this lady will consent, as the only means of saving her life from this form of cancer, to an excision of the entire superior maxilla, part of the nasal bone, a portion of the

lacrimal bone, most of the malar bone, about one-half of the palatal bone, and the entire inferior turbinated bone.

The periosteum forming the floor of the orbit will, if apparently sound, be retained. If the case had been seen a little earlier, it is probable that the bony walls and floor of the orbit could have been left intact, and the moderate degree of diplopia, which will now be evident, could have been avoided. The incision will run along the naso-facial junction, splitting the middle of the lip, and following those lines which will produce as little apparent change in the contour of the face as possible.

The external carotids must be tied to begin with, in order that the operation be less perilously bloody.

The lady has asked me if this meant that her face would be spoiled, and I have assured her that, thanks to the successful work of the gentlemen in your line of our profession, this need not be the case. The amount of deformity will probably be very little, indeed. In Dr. Howe's case the prosthetic appliance, made by Dr. Bishop, was excellent. The patient has been enabled to continue the practice of his profession,—the law,—and I do not think any one, at a distance of three feet, would detect any disfigurement; also his articulation of sounds is entirely clear. At a later period I shall ask some member of this society for something in the way of a plumper for the cheek, and a half-set of upper teeth to help out in the appearance of this patient.

Dr. George S. Allan.—Are there any symptoms, and if so, what symptoms might we look for as indicating the presence or approach of sarcoma?

Dr. Dawbarn.—There are absolutely none, except a lump, a prominence, a swelling. There is not always softening of the bone present, although it is a rather early sign, as a rule. The wise plan is to excise a small piece of any suspicious growth, under cocaine, and have it examined by a competent pathologist.

Dr. Allan.—Would a dentist be warranted in doing this?

Dr. Dawbarn.—Perhaps not. He should refer the case to some surgeon. Any swelling is abnormal, and it is the province and duty of the dentist, in making his examination of the teeth, to note any such condition about the mouth, and call immediate attention to it, provided that he does not think that the state of the teeth can account for the tumefaction.

Dr. J. F. P. Hodson.—Were there, in your estimation, any dental predisposing causes?

Dr. Dawbarn.—Not in the least, in this case; there was, however, pain referred to the teeth, and undoubtedly this is why the dentist extracted five of them. I believe such a practitioner is a disgrace to his profession. I have always regarded even a partially decayed tooth as simply a good friend in distress, and worthy of all care and attention.

Dr. Hodson.—Is it probable that this growth could have occurred, even in the antrum, without some irritating cause?

Dr. Dawbarn.—We do not know as yet the causes from which spring malignant growths, either sarcomata or carcinomata. At the latest meeting of the New York State Medical Society, held at Albany, and at which I was present as a delegate, this question was taken up by a pathologist working in the laboratory of the University of Buffalo. He gave certain reasons for believing that malignant growths were micro-organic in their nature. We have long suspected this, but it has never been proven with absolute certainty. It seems quite probable that, in view of the recent work in this direction, the State Society will receive a subsidy from the Legislature with which to pursue further investigations.

Because of the great and steady increase in frequency of cancerous affections all over the world, which is now well known to be the case, such a subsidy would seem a wise investment of public money.

Dr. J. Morgan Howe.—Is there any characteristic pain usually associated with malignancy?

Dr. Dawbarn.—I know of none. These tumors, like every other tumor, after they have grown to a certain size, begin to encroach upon the surrounding parts, thus irritating the sensory nerves by pressure, producing the same degree of pain as do other tumors in the same situation. I know of no suffering diagnostic and peculiar to these growths.

I would say that if any member of the society is interested, I would feel very much honored to have him present at the operation, which will take place at the Polyclinic Hospital on Friday of this week, at my clinic.

COMMUNICATIONS ON THEORY AND PRACTICE.

Dr. C. O. Kimball.—I have the pleasure of presenting a paper by Dr. L. C. Bryan, of Basel, Switzerland, entitled, "Securing Loose Teeth affected with Pyorrhœa." I will pass around a model exhibiting a case with Dr. Bryan's appliance in position.

(For Dr. Bryan's paper, see page 436.)

Dr. G. H. Marfield.—I will pass around a cast of the lower arch of a patient who came under my care two months ago for treatment of pyorrhœa. The cast is of interest as showing a case of bridge-work which I found in the mouth. I wish to call attention to the size of the gold cap which formed one of the abutments of the bridge as compared with the size of the natural first bicuspid.

Dr. L. C. Leroy.—The two models, an upper and a lower, which I will pass around are from a case in which an ill-fitting plate that had been worn for some time has caused hypertrophy of the lip.

The President.—We will now have the pleasure of hearing the paper of the evening, entitled "Pyorrhœa Alveolaris from a Bacteriological Stand-Point," by Dr. W. J. Younger, of Chicago.

(For Dr. Younger's paper, see page 413.)

DISCUSSION.

Dr. E. C. Briggs.—I have been greatly interested in the new ideas advanced by Dr. Younger, but I regret that I am unable to discuss this paper from the stand-point of a bacteriologist, inasmuch as this is, to me, a new presentation of the subject. I have had some experience with this affection, however, from a clinical stand-point which may be of interest, and which I shall be very glad to relate. I have felt that pyorrhœa alveolaris was not essentially due to micro-organisms, but that, after the production of the pocket or recesses, there was an invasion by the common bacteria of the mouth and the pus-forming bacteria, the process going on, if not checked, to the loss of the teeth thus affected. I also hold that this condition is largely controlled by constitutional conditions; that individuals of the sthenic type yield much more readily to treatment than those of the asthenic.

In uric acid diathesis, complications arise which require treatment for the relief of the constitutional conditions. However, aside from the possible constitutional treatment, which any given case may call for, this disease requires the most vigorous local treatment. Regarding the importance of this local treatment, I most heartily agree with Dr. Younger; indeed, it was Dr. Younger who first impressed me with the importance of a thorough mechanical cleansing of these pus-pockets.

It would seem from his recent investigations that the object of this operation is not only to remove the calculi, the detritus, and pyogenic bacteria, but for the removal of a special bacterium iden-

tified with this disease. However that may be, I cannot emphasize too much the importance of a thorough cleansing of the teeth affected with pyorrhœa alveolaris. So essential is this for a permanent cure that I do not hesitate, in many cases, where I find it impossible to perfectly cleanse a tooth, to extract such a tooth, and, after carefully removing the deposit on the roots, replace it. I find this is attended with a most admirable and successful recovery.

The fixation of the teeth during the treatment I find of great importance, and, apropos of Dr. Bryan's paper, I have frequently supported the lower teeth by Dr. Draper's method, which consists of striking up a splint to go back of the teeth, with pins running clear through the upper third of the incisors. These pins are cut with a screw thread, and, when the appliance is set in cement, everything is made rigid by screwing nuts on these pins. These nuts are afterwards removed.

After the mechanical treatment, I believe in the thorough destruction of the pyogenic membrane and of any diseased soft tissue which may be in the pocket. For this purpose I use a mixture of caustic potash and carbolic acid, or a solution of chloride of zinc. I also use lactic acid, trichloroacetic acid, and aromatic sulphuric acid, not with any expectation that these substances will soften or dissolve any deposit of tartar which might be present.

I also wish to lay great stress upon the treatment which the patient is able to give himself at home, treatment of an antiseptic and stimulating nature. A stimulating treatment is especially essential in patients of the asthenic type, where the system is sluggish and there is a great lack of tone. In these cases massage is attended with marked beneficial results. Bicarbonate of soda is useful, the patient applying it himself, depositing it about the teeth at frequent intervals. I have frequently placed around these teeth, while under treatment, loose bands of pure silver, with very satisfactory results, probably on account of the formation of silver salts by the action of the buccal fluids. It has the advantage over the lactate or nitrate of silver in that there is less discoloration.

Regarding the cause of the disease, it does not seem to me that pyorrhœa alveolaris is very different in its nature, or in its cause, from the trouble which so often occurs around a partially erupted wisdom-tooth. In these cases where the crown of the tooth is just peeping through the gum we have a condition most favorable to the lodgement of *débris* from the mouth and bacteria between the gum

tissue and the enamel, there setting up an irritation followed by a discharge of pus very similar to conditions about a tooth affected with pyorrhœa.

There is one other thing I wish to mention in this connection. --the value of the pulp in a fully developed tooth. As I understand it, the pulp is a constructive organ, and I believe from my experience that its usefulness is practically at an end when the tooth is fully made, and after that period its presence becomes a greater source of trouble and danger than a cause of peace and happiness. The removal of the pulp by means of arsenous acid or its death by approach of decay I do not consider a scientific removal, but if the pulp can be removed surgically and the canal immediately filled without the parts becoming infected, I feel that that tooth is just as good as it was before and just as vital in its associations and connections in the mouth, and by so doing I have prevented any trouble which may come from an irritation of that pulp, especially in pyorrhœa alveolaris, and also prevented the formation of pulp-stones and exostosis. The practice of taking out teeth for the purpose of thoroughly cleansing them in the treatment of pyorrhœa reveals a great many diseases due to irritation of the pulp. A not infrequent cause of trouble is the death of the pulp in one of the roots of a multirooted tooth, a condition which would be very difficult to diagnosticate. For these reasons, one of the first things I do for a tooth seriously affected with pyorrhœa is to surgically remove the pulp and fill the canals.

Dr. S. E. Davenport.—I hope Dr. Briggs will be willing to say a few words or more regarding the extraction and replacement of teeth in the treatment of pyorrhœa alveolaris. Will he kindly inform us whether he prepares the sockets in any particular manner, and also if this procedure applies to both single and multirooted teeth.

Dr. Briggs.—It was Dr. Younger's operation of transplantation which first led me to feel that these teeth could be treated in this way. The process holds good for both single- and double-rooted teeth. After extracting the tooth I inject the socket with a weak solution of cocaine, and drill it as deep as it seems advisable in that particular location. I find in this disease that the tissues at the apex are not in the best condition, and I deem it advisable to deepen the socket to some extent beyond this point.

I have noticed in the transplantation of teeth, in one instance in particular, that by considerably deepening the socket, a firmer

union is produced. In this case I had measured the length of the tooth preparatory to drilling the socket, and in drilling the socket overlooked the fact that I had measured the entire length of the tooth instead of only the root. I think I never had a case which behaved better than this in every way. The tooth became like a rock, and has since been wedged in order that something might be done to an adjoining tooth.

The President.—Will Dr. Briggs kindly inform us how he removes a pulp surgically, when that pulp happens to be in a lower molar; the lower molars having two roots and frequently four canals with a web between?

Dr. Briggs.—In cases where I have extracted the tooth, if unsuccessful in removing the pulp from the opening in the crown, I fill from the apex of the root, consequently whatever organic matter may remain is sealed in the canal and can give no trouble. I extract pulps from teeth in the mouth, with twenty-per-cent. solution of cocaine, by the method described in the *INTERNATIONAL DENTAL JOURNAL* by me some years ago.

Dr. S. A. Hopkins.—I would like to ask Dr. Younger to tell us a little more about his methods of procedure, which led him to the conclusion that this particular form of bacillus was the cause of pyorrhœa alveolaris. As I understand, there were eight cases, and cover glasses as well as cultures were made from each of these cases, the bacillus being found on the cover-glass preparation as well. Were other mouths examined to ascertain if the bacillus was present in healthy mouths as well?

Dr. Younger.—No examinations were made from healthy mouths.

Dr. Hopkins.—The disease was not produced by inoculation?

Dr. Younger.—Only in the rabbit.

Dr. Hopkins.—But the particular disease of pyorrhœa alveolaris has not been produced by inoculation?

Dr. Younger.—This we could not expect without inoculation of human beings, an arrangement for doing which is now under consideration.

Dr. Hopkins.—Galippe described an organism more than ten years ago, which he thought was the specific organism of pyorrhœa alveolaris, and which, according to his description, was very similar to the one described by Dr. Younger. He described it as being at first almost like a coccus, then growing out into long rods, frequently giving almost a leptothrix appearance. May I ask Dr.

Younger if the inoculations made with the organism growing on the surface of the serum or with the liquefied serum contained the bacillus? In the latter case the effects produced on the animals inoculated might have been due to the toxic effect of the serum, and not to the presence of the bacteria. In my examinations of these cases I have made many cover-glass preparations, and in most cases have found the staphylococcus pyogenes aureus and sometimes other pus-forming bacteria. I have not found anything that would produce pyorrhœa when inoculated. Allow me to say, with all due deference, that I think the case cannot be considered as proven until the disease is produced by inoculation in a dog, or some susceptible animal, or in a human subject.

Dr. Younger.—I do not ask that this micro-organism be accepted absolutely as the specific germ of pyorrhœa alveolaris at the present time, as we have not carried our investigations far enough as yet to make definite statements. I have only given the results of the investigations thus far, and, as I have said, will probably be able in a short time to report the effect of inoculations in human beings.

Dr. Allan.—The dog is susceptible.

Dr. Younger.—We cannot always judge accurately of the action of a bacterium on a human subject by its effect on a lower animal. For this reason I shall endeavor to get a human subject; failing that, I shall fall back on the dog.

I wish to say that in the preparation of these cultures the greatest care has been used, and precautions even greater than described in my paper have been observed.

Regarding the bacterium described by Galippe, as I remember, the micro-organism, which he described as a "delicate, double-bulbed parasite, changing into a bacillus by culture," was found in the tubuli of the dentine, and not in the canaliculi of the cementum. Besides, I cannot understand how a parasite can change into a bacillus.

Dr. Gordon White.—It has been my privilege to have been in Dr. Younger's office a number of times, and to have seen him operate in the manner which he has described to us to-night. I have never made any bacteriological examinations of these conditions, but in recent years I have pursued rather closely Dr. Younger's methods, and to him, perhaps, I am indebted more than to any other individual for my success in the treatment of pyorrhœa alveolaris. My first serious attention was called to the disease

some sixteen years ago, when I found its presence in my mother's mouth. This case I treated with aromatic sulphuric acid, which I believe was first recommended by Dr. Atkinson. I have had occasion to treat this case four times since then, with excellent results. To-day I am treating these cases, with more or less success, by Dr. Younger's method, with this exception. I have fancied, from ill-effects in several cases, that the lactic acid was liable to undergo a fermentation, and for this reason I add to the acid, about four drops to the ounce, formalin.

The formaldehyde also seems to have the effect of hardening the gums more rapidly, and in my hands it has been, I think, an excellent adjunct to lactic acid. I believe it generally conceded that formaldehyde is one of our most powerful antiseptics, and will prevent decomposition of flesh indefinitely, as it is claimed a piece of beef immersed in a solution of say a tablespoonful of formalin to a barrel of water is placed in a thoroughly aseptic condition, its surface is hardened and putrefaction prevented. It may have some such effect when placed in the pockets caused by pyorrhœa alveolaris.

I have been very much interested in the subject of the evening, and wish to thank Dr. Younger for his excellent paper.

Dr. Hodson.—On account of the absence of Dr. Stewart I have been asked by Dr. Kimball to relate to the Institute the results of Dr. Stewart's clinic before the Odontological Society on the treatment of pyorrhœa alveolaris. As a matter of fact, I am almost as ignorant of the minutiae of what was done at that clinic as those who were not there. Inasmuch as I am conductor of the clinics, I feel it incumbent upon me, as host, to make sure that every one else sees the operations, and so see very little of them myself.

The theory, however, upon which Dr. Stewart works is this: He believes pyorrhœa alveolaris to be chiefly due to over-calcification of the tooth itself, and especially of the cementum covering its roots, and more or less hypertrophy of the latter as well. His treatment consists, first, in a very careful, thorough, and sure removal of all the calcific deposit, either salivary or serumal, and the removal at the same time of at least one-third of the thickness of the cementum covering the root, as far down as he can get at it.

The treatment thereafter is with pure hydrochloric acid, for the purpose of decalcifying the surface of the cementum. Instead of the usual striving to produce as little inflammation as possible, he,

on the other hand, endeavors to produce as much as possible. In addition to the acid treatment and the removal of the deposit and surface of the cementum he makes three or four grooves lengthwise of the root, in the belief that the new growth dipping into these grooves will make a firmer attachment by this process of ankylosis, or whatever the new bony attachment may be. At any rate, the results are excellent.

The process is preceded by free injection of eucaine into the gum, this in preference to cocaine, because the former produces no constitutional symptoms or after-effects.

The treatment is, as I said, very successful, so much so as is indicated by the fact that we have seen cases of the disease, both before and after Dr. Stewart's treatment, which others had failed to cure, and the most it had seemed possible to do was to hold the disease in control by constant treatment, which cases, when treated by Dr. Stewart, resulted in an apparently perfect and positive cure. I do not know but that the same result may have been produced by Dr. Younger's method, but this method has accomplished a cure of pyorrhœa alveolaris that I have never seen equalled.

Dr. W. G. A. Bonwill.—As much as I respect Dr. Younger, I am really surprised at his article to-night. It seems to me that it does not at all agree with his former practice and teachings.

It was during his practice in San Francisco that he taught us that the treatment of this disease was almost entirely mechanical. In his paper to-night he would have us believe that the cause of pyorrhœa alveolaris is a special bacillus at the apex of the root. For forty-six years I have been in practice, and in all those years I have yet to see the first case of pyorrhœa develop in my practice. Patients over whom we have control, and whose teeth we treat from the beginning and who come to us at frequent intervals and have their teeth cleansed, never develop this disease. Three-quarters of the cases, I believe, come from improper methods of filling teeth, without observing the contour of the tooth as it originally was, and leaving faulty approximal spaces into which food can be crowded. Malocclusion is also a very powerful cause, and it is my invariable practice, after having thoroughly cleansed the teeth, to take impressions of the mouth and study the articulation. Ninety per cent. of the cases can be cured by looking to these details. After thoroughly cleaning the teeth and taking your impressions leave the pockets alone. There is nothing so sure to keep up the trouble as frequently poking instruments into these places.

I am perfectly willing to take my chances against this disease where I have control over my patients from the beginning, and as for bacteria, I have very little regard for them.

Dr. J. Morgan Howe.—I have been greatly pleased with Dr. Younger's paper, which I consider one of the best presented papers—in the sense of a clear presentation of the author's meaning—I have ever listened to at a dental meeting. I will not attempt to discuss it, but I wish to emphasize what the essayist has stated, as to the value and necessity of removing all the deposit from the roots of teeth affected with pyorrhœa.

To accomplish this in cases where it has been otherwise impossible, I have for some time past followed the method spoken of by Dr. Briggs, of extracting the teeth, and, after cleansing and filling the roots, replanting them. This has been attended with quite a respectable percentage of successes.

The removal of the deposit is a prerequisite to complete success, and should not be overlooked or neglected.

Dr. S. E. Davenport.—I wish to make my acknowledgments to Dr. Younger for favoring us this evening, and also for the service his special instruments have rendered my patients during the past few years in the treatment of pyorrhœa alveolaris. We all know how thoroughly Dr. Younger goes into everything he undertakes, and how successful he has been in other directions; we feel, therefore, like accepting most heartily the practical points at least of his conclusions, concerning pyorrhœa alveolaris and its treatment.

We are also greatly indebted to Dr. Briggs for coming to us this evening, and I believe I have derived great benefit from what has been said. There is one point in Dr. Briggs's remarks which I feel ought not to pass without something further being said on the subject. I understood him to say that he considered the pulp to be of no value to the fully developed tooth; that its only function was that concerned in the development, and that after this period he had no hesitancy in extirpating the pulp. I hope I misunderstood him, and I believe that the majority of those present will differ from this view. In my opinion, the living pulp is of value to the adult tooth, if for no other reason than for the additional strength and elasticity which it imparts.

It is quite possible, however, that Dr. Briggs refers only to those teeth so affected with pyorrhœa alveolaris that there is a tendency to disturbances in the pulp, in which case I should find no fault with its surgical extraction. My mind goes back to a meeting of a

dental society last year, where a New York practitioner made the sweeping assertion that the pulp was of no value to a tooth after it had arrived at its full growth, and a gentleman here to-night, to his honor be it said, took the opposite view and very ably sustained his position.

Dr. Briggs.—I am very glad that Dr. Davenport has mentioned this subject again. Of course, I would not undertake to remove the pulp from a perfectly sound tooth. The removal only comes in connection with the treatment of disease, but I still think that while the presence of a living pulp may have certain advantages in the way of resiliency and elasticity, perhaps, these advantages are greatly over-balanced by the disadvantages, for with the pulp comes pulp-stones, exostosis, and death of the pulp.

Dr. A. H. Brockway.—In other words, the value of the pulp diminishes with the maturity of the tooth. I quite agree with this.

Dr. Hopkins.—I would like to ask Dr. Kimball if he recalls, in Dr. Dunning's practice, a case of pyorrhœa alveolaris in one of Dr. Dunning's patients, who had been constantly under his care, and who appeared for examination and treatment whenever he wished him to do so; whether it is not true that Dr. Dunning eliminated pyorrhœa alveolaris from his practice?

Dr. C. O. Kimball.—My own personal experience, running back thirty years, is very much on a line with that of Dr. Bonwill and that of many other gentlemen present. So far as I can speak of Dr. Dunning's practice, a certain small percentage of which has come into my hands, it would seem that in those patients whose mouths were closely watched and the tartar carefully and thoroughly removed I cannot recall a single case of pyorrhœa alveolaris. Of course, there may be cases which have drifted beyond my knowledge. I have seen one or two cases in my own practice which have puzzled me, cases which have not responded to treatment. In the case of molar teeth it has sometimes seemed impossible to thoroughly remove the deposit at the bifurcation of the roots. I suppose if I had more boldness in operation I should adopt Dr. Briggs's method of extracting the tooth. However, that has not been my plan. I can only say that I heartily corroborate Dr. Bonwill's views, that in cases which have been carefully watched and the tartar thoroughly removed pyorrhœa alveolaris does not occur.

The President.—It seems to me that we have touched upon a subject this evening which interests us very much. The last speaker

voices the experience of a great many of the older practitioners present. He might even go farther, and assert that, with the exception of a few cases of systemic disease, such as gout, rheumatism, and diabetes, pyorrhœa alveolaris does not exist where the teeth have been properly cared for.

I was pleased that Dr. Davenport asked Dr. Briggs the question he did, for I have felt that Dr. Briggs should tell us more regarding this subject, and also regarding his method of surgically extirpating the pulps of teeth; and I want to put a large interrogation-point after this, for I believe there are many teeth in the mouth, especially molars and some bicuspid, the roots of which cannot be surgically cleared by the hand of man. I feel quite sure that no gentleman present feels himself with Voltaire "above his Creator in knowledge." All good and useful teeth should have pulps, and unless they have been subjected to great neglect at some stage of their existence, they will not need to have their pulps extirpated.

To return to the treatment of pyorrhœa, which has been so ably dwelt upon, Dr. Younger mentioned two or three things on which I should be obliged if he would still further enlighten us. Among other things, he stated that a large percentage of the human animal—about ninety per cent.—was more or less afflicted with this disease. He also stated that he did care to experiment on dogs in the matter of inoculation for fear of inaccuracy. If the injection of a pure culture is to be made upon a human subject, I would suggest it be upon one of the ten-per-cent. immunes. Dr. Bonwill brought out a truth which is not very often called to our attention. He was very careful to emphasize the fact that the articulation had much to do with the presence or absence of tartar. The extraction of one or more teeth from the normal thirty-two allows more or less tipping or displacement of the remaining teeth, leaving spaces and protected nooks favorable to the deposition of tartar. To give a very personal illustration of this: I have lost just two teeth, a lower molar and an upper bicuspid, extracted in the hope of correcting an irregularity existing in the incisors. After twenty-five years I found a space existing between a canine and bicuspid, the breadth of a finger-nail, with a collection of tartar in this situation. I forced these teeth together, closing up the spaces, and have held them closed, and since then have had no trouble with the collection of tartar. I have seen this in a great many cases, and only allude to it, as I do not see it generally mentioned in our literature.

Dr. Bonwill.—There is one other thing I wish to speak of in connection with articulation in these cases. It is the desirability of restoring, by removable sections, any teeth which may have been lost, thus bringing back the normal occlusion, making two perfect arches. I prefer removable pieces which can be easily cleaned. A bridge in these situations is very undesirable, as it cannot be properly cleansed, and is very apt to result in the production of pyorrhœa. A proper occlusion is so important that it is the first step in the treatment of the disease, and not only should we look for the restoration of lost parts, but extruded teeth should be ground and the articulation so corrected that each tooth does its share, and only its share, of the work to be done. All fillings should be contoured to the original form of the tooth. It is this malocclusion which is the cause of more cases of pyorrhœa than any other one thing.

Dr. Dawbarn.—It seems to me that the essayist has put his finger, without question, upon the cause of this disease. I am not a specialist in this line, but as a specialist in another line of our common profession, I should be greatly surprised if there were not some microbic cause for this affection.

To be sure, I think there are undoubtedly two factors,—the mechanical irritation of the tartar and the microbic irritation.

We all know that when we have such mechanical irritation it distinctly tends to the formation of pus with very much less microbic infection than otherwise would be the case.

Mechanical irritation by the formation of tartar undoubtedly is a predisposing cause, but the exciting cause must be microbic, unless we have here the anomaly of all scientific surgery. Whether the individual microbe which is being studied to-night is the right one is another question, and one which will never be settled definitely until the disease has been produced by inoculation of a human subject. I have experimented in other fields upon dogs and other lower animals, and could mention many instances where dogs differ strikingly from the human being. For instance, as to the action of anæsthetics, when the famous experiments were carried out through the Nizam of Hyderabad, by the English Chloroform Commission experimenting on dogs, it was found that these died always from respiratory failure. This we know is not always the case in the human being. Dogs also react differently to heart-stimulants, and there is also a marked irregularity of rhythm in the beating of a dog's heart; no dog ever has a regular pulse. Another point

in which they differ is in their response to morphine-poisoning. Some little time ago it was stated by Dr. Moor, of New York, that he could cure morphine-poisoning by the administration of permanganate of potassium; that he had experimented by injecting several grains in a dog, and afterwards exhibiting successfully the antidote. The fact is that it is difficult to kill a dog with morphine. They can receive three, four, or five grains hypodermically without death ensuing. For these and other reasons results cannot be considered absolutely conclusive until the disease has been produced by inoculation of a human being; though tests on the lower animals are useful and, indeed, indispensable.

Dr. Younger.—I regret that I have a very poor memory, and trust I may be excused if I fail to answer all the questions which have been asked. As I have said, I do not claim that it is absolutely certain, beyond a doubt, that I have discovered the bacterium of pyorrhœa. I only stated that the results thus far obtained point very strongly in this direction. In seven cases out of eight we have succeeded in finding a bacterium which has not been before described. Regarding Dr. Bonwill's statement, that these theories do not agree with my former experience and teaching, I fail to see upon what ground he bases this opinion. Undoubtedly malarticulation is a cause; but I do not give this factor the importance that Dr. Bonwill does. I believe that pyorrhœa is the cause of malocclusion much more often than is malocclusion the cause of pyorrhœa. In the papers which I have had the honor of having Dr. Bonwill listen to, one in San Francisco and the other in Moscow, I gave the same mechanical and traumatic reasons as the causes that bring about pyorrhœa that I give in this paper, and which I will mention more fully later on. At that time I had in mind these bacterial theories, but was not ready to announce them, and said nothing about the microbic side of the question, except in my Moscow paper, in which I promulgated the theory that the source of the deposit was from the alveolar substance; that, by an inflammatory action the walls of the alveolar process were broken down, its lime salts precipitated or liberated in minute division, and taken up by the pus or exudate, and were by force of impact deposited on the root (the pericementum having already been removed by inflammatory destruction), and agglutinated there by bacterial energy; that the deposit upon the root is usually in proportion to the amount of wasting of the alveolus, and *vice versa*. There is nothing in my former statements which conflicts with my paper to-

night. But in this paper I had thought to deal more minutely with the bacterial side of the question, and I only regret that I did not have two or three more weeks in which to perform some experiments upon human individuals.

In its inception, the disease is not bacterial, but traumatic. An inflammatory action has first to be established which will reach to the alveolar process. This is effected by the lodgement in the fold of the gum that surrounds the cervix of the tooth of some insoluble substance, as little grains of sand, seeds of berries, husks of oatmeal, minute flakes floating in beer, little fragments of the skin of fruit or their core, bristles from the tooth-brush, food detritus, etc., which, by persistent presence, awakens irritation, then inflammation and destruction of the soft tissues, until the periodontal membrane is reached, involved, and punctured, and the alveolar process exposed. It is at this time that the nutrient material is presented that invites the pyorrhœal bacterium to establish its virulent energies. It is not until this is accomplished that pyorrhœa alveolaris commences. Whatever experiments we make, whether in the lower animals or the genus homo, I believe it will be necessary for success that this inflammatory condition, reaching to the alveolar process, be established before placing the microbe. I think the puncture of the periodontal membrane must always precede the invasion of the microbe. I feel certain that if the microbes are injected into healthy gum, or where the vitality of the tissue has not been sufficiently lowered, that the flow of serum induced by the lesion would be sufficient to destroy their vitality, or to at least render them inert. And this is the reason that the experiments of Miller and others in the mouth of dogs—presuming for argument's sake that they had my bacillus—were fruitless. It is this fact—this having to prepare a nutrient condition for the bacterium beforehand—that will, I think, make it difficult to establish all of Koch's requisites to prove a specific bacterium for this disease.

Of course, there is a great deal in the power of resistance in the individual, but it is only in the progress of the disease that this power is manifested, because, in a lowered condition of systemic vitality, the proteid molecules are more easily broken down or disintegrated by bacterial action. Perfect systemic health will not immune, no more than a vitiated constitutional condition will produce pyorrhœa.

Dr. F. Milton Smith.—I have been very much interested in Dr. Younger's remarks, and was also pleased to hear Drs. Bonwill and

Kimball say that cases of pyorrhœa alveolaris seldom have developed in their practice where they have had control of their patients from early life. It does not seem to me that there is anything antagonistic between the grounds taken by Dr. Younger and these gentlemen. The thought has occurred to me many times that, if we could have entire control of our patients, keeping the gums in a healthy condition, and the teeth cleansed, we would have no difficulty in keeping our patients free from the disease; but if such is not the case and the gums become unhealthy and detached from the necks of teeth, it would seem that then we have a favorable condition for these bacteria to set up the trouble. I am very glad that Dr. Younger has treated the subject in a practical way, for, as another has said, it is a condition that confronts us and not a theory. It is not so much a question of how we shall treat those whom we know are safe, but what we shall do for the many who are already in trouble. I move that we extend a vote of thanks to Dr. Younger for his excellent paper, and to Drs. Briggs, Hopkins, and Bonwill for their assistance in the discussion.

Carried.

Adjourned.

FRED. L. BOGUE, M.D., D.D.S.,
Editor The New York Institute of Stomatology.

Editorial.

THE CONVENTIONS.

THE period has arrived when the dental fraternity are looking forward to the annual gatherings, or, at least, such of the number who take an interest in these important meetings. It is unfortunately too true that only a small minority of the dentists of the country regard these with sufficient interest to take an active part in their deliberations. Why this is so, each individual must answer for himself, but that it is an error all recognize who appreciate their value individually and collectively. However defective these bodies may be, and it is recognized that they are far from perfect, they lead the thought of the dental profession, and without their aid there would not be a profession worthy the name. It must be

accepted, therefore, as the duty of all to be present, and lend their aid by that presence, if for no other reason than to advance the standard of our calling, so that each year may bring it one step nearer to our ideals.

The present year promises to be one of unusual interest. The important question of legislation will be brought forward in, perhaps, all the conventions meeting at Niagara, and while it would be unreasonable to expect that all the difficult problems connected therewith will be settled, it is to be hoped that something will result determining the status of dentistry in its relation to law.

The National Dental Association, under the leadership of the energetic president, Dr. Burkhardt, gives the promise of redeeming its early life, which came very near being shattered at Old Point Comfort and Omaha. The change made from the American and Southern, at the former place, failed to effect what all had anticipated by the union of the two organizations, but, probably, the mistakes then made will eventuate in something better than existed previously. It was the hope of the writer that upon the ruins of the two old organizations might be built up a body of men devoted to the higher work of dentistry, and an organization truly scientific in character. That this will come in time is assured, but it will only be accomplished by the gradual evolutionary process that a higher education can alone bring.

The preliminary announcement, made by the executive officers, exhibits, if nothing else, a wide interest and an earnest effort by a large body of men in the direction of better work. It evidences that the amount of material offered is altogether beyond the digestive powers of any convention, and this should be curtailed by the sections having the matter in charge. There are two positive evils connected with our annual gatherings,—a paucity of material and an excess. The first means a dull meeting, through lack of interest, and the latter an equally dull meeting by having more material than can possibly be presented. The time of a convention should be so subdivided that ample opportunity could be given for free expression of thought, for it is in this, more than from the papers, that the greatest good is to be derived. The life of every meeting is practically destroyed by the continuous reading of papers, and this is increased by the customary method of "reading by title."

While the making of constitutions is an infliction, and should not be entered into without due cause, it would seem that the laws

under which the National Association is at present working should be, at least, modified. The constitution was adopted without due consideration at Old Point Comfort, and it needs entire revision and brought to the briefest possible limits. If the Association could see its way to effect this by referring it to a committee, to report next year, it would be of decided advantage to the Association and to its membership.

The National Association of Dental Faculties and the National Association of Dental Examiners will meet this year at the same place and time. The latter evidently has not found the holding of its annual meeting widely separated from the other active body a profitable venture. While these two organizations have little in common, the general idea of improving the profession is held by both, and it would, therefore, seem appropriate that the two meetings should be held near to each other. While consultations heretofore held through committees of both bodies have not resulted in harmonious action, it does not necessarily follow that this must always be the result. It is possible that a freer interchange of views might bring about better conditions and a more harmonious feeling.

The Association of Faculties has performed a great work in elevating dental education, and this is by no means ended; indeed, it has scarcely begun. The criticisms made against this body of earnest workers have had their origin in a class of mind that is never satisfied unless things are managed after their ideas. The cry has been repeated, over and over again, that this body reversed its decision upon preliminary training, and had taken a backward step, and had reached the limit of its power. Although this has been proven to be untrue, it serves the purpose of those in antagonism to dental colleges to repeat it with variations to suit the case.

The coming session of this Association will be of special importance, for many questions will be forced before it for consideration of vital interest to dental education. The dental colleges of the country are to-day between the upper and lower millstones of law and indifference of the profession, and some settlement must be made if harmony is to exist.

The National Association of Examiners is a body composed of delegates from State Boards. These are not all represented in its councils. Neither it nor the National Association of Dental Faculties have any legal standing. The latter works solely through the restraining power of its own laws upon its members. These

have been found amply sufficient, and have accomplished much for the advancement of dental education. The Association of Dental Examiners works by another method,—that of binding the various State Boards to do its bidding, and through these to force the dental colleges to arrange their curricula according to the crude ideas of the National body. It is to be regretted that some of the colleges have seen fit to accept the decrees promulgated by this organization. Others have, very properly, refused to be thus bound, with the result that in some of the States the colleges and the boards are in a legal contest. So far the decisions have thrown the National Association of Examiners unceremoniously out of court. If this body is wise it will endeavor to work in harmony with the Faculties, and thus cease to accomplish the impossible. The colleges of repute in this country will not submit to be dictated to by an irresponsible body, and the earlier this fact enters the minds of the members of the National Association of Examiners the better it will be for all concerned.

The question of interstate recognition is being broadly considered, and it is one that must be met and answered. This is not the place to discuss it, and it will suffice here to say that the legislation of one State against another will not stand, but whether it will meet the test of legal decision or not is immaterial to the vital issue, which is, Is it equitable to deprive a man, having earned his diploma and passed the legal obstacles to practice, from making his living in any State of this Union? It is not only not equitable, but it is unprofessional.

There should be no sympathetic union with those who seek to embarrass the toilers in educational fields. They are the iconoclasts who aim to destroy the temple laboriously reared under the pretence of strengthening the foundations. They stand aloof, and in their ignorance demand the impossible, and thus throw these out of line with the educational structure and with the progress of the age.

THE "DENTAL DIGEST" AND DENTAL COLLEGES.

It is not surprising that the editor of the *Dental Digest* should labor through several pages of editorial, in the May number, to demonstrate the great value of examining boards and the inefficiency of the National Association of Dental Faculties, but it is

astonishing that one so generally conversant with the work of the dental profession should deliberately, and apparently with malice aforethought, attempt to injure the work of the Faculties. Had he confined his criticism to simple opposition to that body, it would not have been considered of sufficient importance to notice, for the editor has, for some unexplained reason, always been in apparent opposition to colleges, as at present organized.

Truthful criticism is always valuable and welcomed, but when it descends to statements giving a perversion of facts, it becomes a serious matter. The following quotation illustrates this: "After great pressure had been brought to bear by *the earnest men of the profession for a higher standard*, the Faculties Association finally agreed to a requirement for better education before entrance, the same to take effect the following year; but at the next annual meeting the promised advance was refused, and the Association was left without any adequate standard of requirements, and no assurance was given the profession *that even this low standard would be enforced*. . . . It became evident to all intelligent practitioners that some other controlling power *must enforce* the reform." (Italics ours.)

Is this honest? The editor of the *Dental Digest* either did or did not know. If he were conversant with the history of the Faculties, he knew perfectly well the reasons for this so-called backward step. It has been repeatedly explained upon our pages, and reiteration will not be attempted here. If, on the other hand, he was ignorant of the final action of the Faculties, then why attempt an editorial that will be accepted as truth by all his readers. He was perfectly aware, or should have been, that whatever standard was adopted by the body would be enforced, and the colleges under its jurisdiction understood this fully. This Association will not move faster than it seems wise to go, whether the influence to move it proceeds from the *Dental Digest* or the National Association of Dental Examiners.

The editor forgot entirely to mention that the Faculties last year, at Omaha, adopted the following rule. It is quoted for his information.

"The minimum preliminary educational requirement of colleges of this Association, for the session of 1899-1900, shall be a certificate of entrance into the second year of a high school, or its equivalent, the preliminary examination to be placed in the hands of any State or county Superintendent of Public Instruction."

While this may not meet his views, it did that of the Association, and it was, unquestionably, as high a standard as it was wise to adopt at that time.

Had the editor of the *Dental Digest* been equally as wise, he would not have laid himself open to the suspicion that he quoted past history with the object of lowering the Faculties in the estimation of the dental profession.

It is not important, in our several relations, whether the editor does or does not support the National Association of Dental Examiners. If the *Dental Digest* finds its interest runs that way and not in the direction of the colleges, the latter have no cause to complain, but the editor will be wiser if he recalls the fact to memory that his warmest supporters in the Dental Protective Association have been these same educators, and to antagonize them in their efforts to raise the standard of dental education, slowly it may be, but steadily forward, by a suppression of facts, is not the course that will commend itself to right-thinking minds.

His article throughout exhibits an antagonistic animus, which, while it will be pleasant reading to a certain class, will be equally unpleasant to another and, perhaps, a far more important one, where the best interests of the dental profession are concerned.

DECISION UPON JURY SERVICE.

DR. E. P. BEADLES, of Danville, Va., has performed the dental profession a good service in the matter of jury duty. He was summoned, but carried the matter before another court, and secured a decision that he ranked as a physician and "was not subject to jury service." This will, doubtless, be of value to others similarly situated.

SPECIAL NOTICE.

WILL our correspondents kindly bear in mind that all matter intended for publication in this journal, outside of the advertising department, should be sent direct to the editor, Dr. James Truman, 4505 Chester Avenue, Philadelphia, while all matter pertaining to the business must be addressed to J. B. Lippincott Company, 718

Filbert Street, Philadelphia. Inquiries relating to advertisements should be sent to H. T. Pearce, 1914 Cherry Street, Philadelphia. All checks should *be drawn to the order of* J. B. Lippincott Company. Attention to these requirements will be greatly appreciated by those having charge of the several departments of the INTERNATIONAL DENTAL JOURNAL.

THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE annual meeting of the National Association of Dental Faculties will be held at Niagara Falls, beginning July 28, at 10 A.M., 1899, and will continue until the 31st.

The Executive Committee of this body will meet on Thursday, the 27th, at ten o'clock, for the preparation of business.

This meeting will be an important one, and it is essential that all schools should be represented.

Bibliography.

A MANUAL OF COMPARATIVE DENTAL ANATOMY FOR DENTAL STUDENTS. Prepared by request of the National Association of Dental Faculties, and adopted as a text-book for colleges August 27, 1898. By Alton Howard Thompson, D.D.S., Topeka, Kansas, Professor of Dental Anatomy, Human and Comparative, in the Kansas City Dental College, Kansas City, Mo. The S. S. White Dental Manufacturing Co., 1899.

The best evidence that can be given of the advance in the dental curriculum is that presented by this text-book, prepared by request of the Association of Faculties. When, in the past, this subject of comparative anatomy was made part of the study in the dental schools, it was received, both by students and faculties, with indifference, and the teacher felt forced to reduce the number of his lectures or abandon the subject altogether. Several, including the reviewer, labored for years to create an interest in this important subject, but the success, until recent years, was not commensurate

with the efforts made. That there has been a marked change in this feeling is very gratifying, and now dental colleges are seeking men competent to teach this branch. The author recognizes this change, and in his preface says, "The time was when it was necessary to apologize for the intrusion of comparative dental anatomy into the curriculum of dental education, but it is a matter of congratulation that the value of this branch, as an element in our professional education, is now generally recognized. . . . It is also recognized that this study furnishes the only scientific elucidation of the origin and principles of these forms and functions which had heretofore been taught by the study of the human teeth alone."

The book has been kept within reasonable limits, 174 pages, the author having, apparently, in mind that a large book, with padded text, is a serious evil. Clearness and brevity is not recognized as it should be by dental authors.

The book is divided into nine chapters: Chapter I. on "General Zoology and Comparative Anatomy," and then follow "Teeth in General, of Invertebrates, Vertebrates, Fishes, Reptiles, Mammals, Higher Apes, and Man." This covers a wide field, but the subject-matter is so lucidly stated that there is left but little to be desired. While comparative anatomy cannot and ought not to be taught from books alone, much can be gained from a work of this kind to direct the course of study.

The care given to the compilation of this book disarms criticism. In all the chapters there is an evident care to follow accepted lines of observation. Originality is not to be looked for, nor would it be desirable in a book strictly intended for students.

It seems to the reviewer that the author assumes a too positive statement in discussing the development of forms on page 47. He states that "the premolar and molar teeth were evidently developed by the duplication of cones by fission or addition. . . . Thus the cones were duplicated and tubercles added to form multi-tubercular types." This corresponds with accepted ideas and may have been the true evolutionary process, but that it has been proved is not so certain.

In the effort to combine brevity with clearness of description, the author, at times, fails to enter sufficiently into detail. This is especially noticeable in the description of the sea-urchin, "Aristotle's lantern." This complicated dental apparatus deserves more than a paragraph and the limited description of the number of the teeth.

In giving the names and functions of teeth, on page 50, he states that "the premolars are the half molars just distally of the canines. These are called the bicuspid in man." While it is true that the common and universal name is bicuspid, it is a question whether this term should not give place to premolar, or else call the molars by the number of cusps. As this is impractical, it would seem better to drop this common term in teaching.

The series of questions following each chapter do not, in the opinion of the reviewer, add to the value of the book. Students should not be taught to study comparative anatomy by memorizing each chapter. Anatomy cannot be studied that way, but the temptation is always present, where these questions exist, to take that course, as a short cut to knowledge.

This book will not, probably, have any competition in this country, and it is to be hoped that, with some minor changes, it will remain not only as a text-book, but as an incentive to dental faculties to broaden this study, the only sure foundation for an exact knowledge of the teeth of man.

Obituary.

J. P. GERAN, D.D.S.

THE Dental Society of the State of New York has learned with deep regret of the death of one of its honored members, Dr. J. P. Geran, who passed away, in Brooklyn, on March 28, 1899.

Dr. Geran became a member of the Society in 1885, since which time he has been rarely absent from its meetings, serving faithfully in committees and always actively interested in all its proceedings.

Among his more intimate associates of the Second District, he was valued as a dentist of intelligence and skill, one who kept close watch upon the advances made in the dental profession, and was ready to avail himself of their assistance.

A man of good judgment, rare accomplishments, and noble qualities, he had endeared himself to a large circle of professional and personal friends, who will mourn with his family his untimely end.

A. P. SOUTHWICK, D.D.S.

THE intelligence of the sudden and unexpected death of our friend and colaborer, Dr. A. P. Southwick, of Buffalo, N. Y., awakened within our hearts emotions of the most profound sorrow, while bowing to the Divine Wisdom which has taken him from us. We improve this opportunity of paying a grateful tribute to his memory, and to give expression to our appreciation of him as a man and coworker in the dental profession.

All will bear testimony that he was a genial and cordial gentleman of noble impulses, full of kindly charities, and always awake to the interests and progress of his calling. He was enterprising in all his undertakings. The State Board of Dental Examiners, of which he was so long its president, the State Society, which likewise enjoyed his wisdom in council and labor for many years, as well as the Dental Department of the University of Buffalo, which has lost an earnest worker and most efficient teacher, will deplore their loss.

Foreign Correspondence.

THE QUESTION OF PRIORITY IN THE INTRODUCTION
OF THE PROCESS OF BLEACHING DISCOLORED
TEETH.

BERLIN, GERMANY, VICTORIA STRASSE, May 9, 1899.

TO THE EDITOR:

SIR,—In the January number of the *INTERNATIONAL DENTAL JOURNAL* the editor, in reviewing my "*Lehrbuch der Zahnheilkunde*," took me to task for not having given him credit as the originator of the process of bleaching teeth by chlorinated lime and acetic acid, stating at the same time that it is the habit of nearly all dental writers to ignore the important work which he has done. I wish to assure Dr. Truman that this omission was no more intentional on my part than probably on the part of the other writers to whom he refers. We of the dental profession are all too much indebted to Dr. Truman for his life-long efforts towards the advancement of dental science to willingly do anything to detract from his well-earned reputation. In the case of bleaching teeth

with chlorinated lime, it is about the same as in all other discoveries or inventions which have become common property.

We go on enjoying the benefits resulting from such discoveries without thinking of the discoverer or of his too often unrequited labors. I shall make good the omission in the next edition of my book (should there be one) to Dr. Truman, as well as to the originators of the other methods of bleaching.

In this connection I wish to call attention to an error which crept into the review and which I would like to correct. I am reported as saying, "Of all the remedies which have become practical in pulpitis, I regard iodoform as the best." This is not quite accurate. I really said, "Of the remedies which are often used in pulpitis, I *mention* iodoform first." I have not treated a case of pulpitis with iodoform for ten years.

W. D. MILLER.

REMARKS.

While appreciating the kindly intentions of Professor Miller, the editor of this journal would not be misunderstood in regard to the criticism alluded to. It may seem to the general reader that Dr. Truman is peculiarly sensitive in regard to the paternity of the processes originating with him. This would be very far from the truth. Whatever work he has done, whether that be much or little, has been to make the dental profession better in its practical work, and not to build any monument for himself. He, however, regards the facts of dental history important. The want of care in the compiling of books has made the work of the dental historian exceedingly difficult. It is a great labor to search for the originator of any method of practice, but if the author fails to do this, he simply increases the difficulty for those who succeed him, if he does not efface the originator entirely from the minds of the profession.

The matter would not have been alluded to in the review, but for the fact that several books have been issued in recent years all equally guilty in this respect. It is true that the dental profession "go on enjoying the benefits resulting from such discoveries," and not only do not thank the discoverer, whoever he may be, but quietly weave into papers the results attained, and thus deprive the originators of the only remuneration for their work expected or desired,—credit for that accomplished.

It is with regret that the review over-stated Professor Miller's views in regard to iodoform. The impression conveyed to the re-

viewer's mind was that Professor Miller regarded this agent as the best to use in pulpitis. He will accept, with this explanation, also the regret that he has not used this drug in "ten years," for he has thereby lost, in the opinion of the writer, the aid of one of the best, if not *the* best, agent in use, not so much as an antiseptic but as an analgesic.—ED.

Domestic Correspondence.

HONORARY DEGREES IN DENTISTRY,—WHY NOT?

TO THE EDITOR:

SIR,—Does it not strike you as absurd that, while the distinguished universities of Europe and America confer honorary degrees upon men who have earned them by their public services, either in their own specialty or some collateral branch, the National Association of Dental Faculties places unnatural obstacles in the way of the same honors being conferred by our respectable dental colleges upon men abroad who have done much to uphold dental science and education? It could not demean a dental school to follow the example of Oxford and Cambridge, or our own Yale and Harvard. The honors might be confined to dentists who have by long service for the profession in dental science, education, and journalism entitled themselves to such consideration. It was a mistake on the part of the National Association of Faculties to put severe restrictions on the schools within its jurisdiction. There are men worthy of honor whose names would honor the schools. This Association has done great service to the profession, and I trust I have written no word of disparagement, and I hope, at least, you will not prevent the subject being discussed.

AN AMERICAN DENTIST.

REMARKS.

There are, doubtless, many who feel exactly as our correspondent. He must understand, however, that the Association of Faculties, in prohibiting any college from granting an honorary degree, simply followed a line of practice adopted by all professional schools in this country. This grew out of the fact that professional degrees had been bought and sold and are to-day bought and sold *in ab-*

sentia, and it required a positive interdiction to prevent the charge being made that the colleges were engaged in a similar traffic.

The subject has been fully threshed out in former years, and it is not at all likely that dental colleges will be permitted to grant these degrees, and it certainly is to be hoped that no effort will be made to revive such a dangerous practice.—ED.

Notes and Comments.¹

INDEPENDENT JOURNALISM.—In speaking upon the subject of independent journalism, Dr. Charles A. Brackett referred to the *INTERNATIONAL DENTAL JOURNAL* in the following manner:

“The *INTERNATIONAL DENTAL JOURNAL* has always had high merit in its reports of society meetings and in its extended original articles. It has been said that it might do better in having, in addition, more short, simple items not requiring much energy to write or to read, but which would be practical suggestions. It is in the power of every dentist to make, within the compass of a few lines, a half-page, more or less, reports of cases, suggestions about doing certain things and overcoming difficulties, that would be useful to others. If we will, each one of us, two or three times a year, contribute ten lines to the *JOURNAL*, the aggregate will be a large mass of material that will increase its attractiveness and be a great benefit to all concerned.”

It was for just such a purpose that the department of “Notes and Comments” was created, but too few have contributed to it. We hope many will follow the suggestion of Dr. Brackett, which is also given in the foot-note below, of long standing, and assist in advancing the usefulness of this department.

DOES LICENSE TO PRACTISE MEDICINE PERMIT THE PRACTICE OF ORAL SURGERY?—A curious case for medico-legal decision, reported in the *Dominion Dental Journal*, has arisen in the State of Rhode Island. Registration for medical practice is granted in

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

Rhode Island upon application to the State Board of Health by graduates of recognized medical colleges, while dentists are required, by a recent enactment, to pass an examination before the State Board of Registration in Dentistry. A graduate in dental surgery and in medicine, after having been registered by the State Board of Health, and securing his license, engaged in the practice of medicine, including dental and oral surgery. He was forthwith arrested for infraction of the law requiring examination and license for the practice of dental surgery, and the case now awaits judicial decision. Logically, it would be reasoned that one qualified to practise medicine and so authorized to do by State authority, would at the same time be conceded the qualification and the license to practise any part of medicine, ophthalmology, otology, obstetrics, gynæcology, oral and dental surgery, etc. To ask a qualified and licensed medical man to pass a special examination in oral and dental surgery would not be more ridiculous than to ask him to pass a special examination and secure a special license for the practice of midwifery. It would seem, further, from the legal point of view, that when there is conflict in letter between existing legislation the spirit must be followed, and surely no one would contend that the part is greater than the whole. The question seems a very simple one, and the solution should be attended with no difficulty or complication. It all revolves about the point whether an approved graduate in medicine shall be permitted to practise all branches of it.

DENTAL KNOWLEDGE IN THE MEDICAL PROFESSION.—In writing upon this subject, Professor Fillebrown reports a case where an eminent surgeon took a man suffering from an abscess caused by the root of an inferior molar—and only half a root at that—and operated on him twice for necrosis, leaving big scars on the jaw. That patient finally came to what medical men regard as a second-rate institution—a dental infirmary—and received complete relief. So long as such ignorance prevails we cannot expect medical men to understand the position of dentistry. If our medical schools will insist that physicians shall know as much about the relations of the teeth to the various parts of the human system and the influence of their diseased conditions as they do about the effect of other diseased organs on the body, we shall then have a physician who will respect dentistry, and who will be a great deal more of a man himself. So long as our medical schools ignore a part of

the human system, and neglect to instruct their students as to what its relations are, just so long will this unsatisfactory state of affairs exist.

DO WE WISH TO BE MEDICAL SPECIALISTS?—Dr. J. L. Williams, in a paper before the New York Odontological Society, says, "We have been hammering and clamoring for I know not how many years at the door of Medicine, asking, beseeching, begging for recognition as medical specialists; we give ourselves all sorts of names, oral surgeons, oral specialists, stomatologists, and what not, in the hope that we may gain a nod of recognition from the world that shall imply we are something more than what is generally conveyed by the term "dentist;" we have done nearly everything except the right thing, the dignified, manly thing. Now, if we will go to work in real honest earnest, we shall soon enter into our rightful and desired position without asking permission of any of the older organizations. The man who feels that he is master of the situation asks no favors of anybody."

LEAD-TIN AND LEAD-ANTIMONY ALLOYS, QUICK TESTING.—Mr. Joseph Richards, of Philadelphia, describes in the *Journal of the Franklin Institute*, May, 1899, page 398, a ready and quick method of testing the above alloys, which he has invented and reduced to commercial use. The bulk of lead-ores are contaminated with antimony, and in the refining of lead the antimony, when at a dull red heat, is rapidly oxidized, and floats on the top of the molten metal as a scum. This is removed as fast as formed, and in the course of from ten to forty-eight hours all the antimony is eliminated. It is desirable in this process that the workman should know how he is progressing with his work. In order to meet this demand, Mr. Richards made a series of tests of the relative weights of standard alloys of antimony and lead, from pure lead up to twenty-four per cent. of antimony. (Lead becomes saturated with twenty-four per cent. of antimony, no more will unite with it, and any in excess of this floats upon the molten mass; so that this is the limit to which this method of testing can be applied.) Castings were made of these alloys, and the average weight of each carefully ascertained. With this data, he constructed a balance so graduated that when balanced with a bullet of alloy cast in a standard mould in the pan, the tee marked the exact percentage of antimony in the alloy.

During his experiments he noticed a peculiar behavior of some of these alloys. While antimony is lighter than lead, he found that an alloy containing less than two per cent. of antimony weighed more than pure lead. To meet this difficulty he took advantage of the physical property of these alloys forming, when a small button is poured upon a flat plate, a surface not at all like lead, but of a fine, white, crystalline appearance. So he has supplemented his testing balance with a set of buttons of a known composition, from two per cent. down to zero, changing composition by one-tenth of one per cent. Thus the operator can go on with his work until the button shows a perfectly lustrous surface free from crystals; at this point the lead will be 998 fine or over.

He uses a similar process for testing lead-tin alloys, and also for testing what is commercially known as *terne plates*, sheets of iron coated with an alloy of lead and tin, used for roofing purposes. The balances are so constructed for each of these uses that no calculation is necessary, the position of the tee gives at a glance the information desired to a quarter of one per cent. To make the same test by the usual chemical process requires several hours.

DEATH FROM ATTEMPT AT TOOTH-EXTRACTION.—The following case is reported by the *Dental Record*, of London, England. A young man, eighteen years of age, endeavored to extract the roots of a left upper molar by means of a sharpened wooden penholder. After these attempts at amateur tooth-extraction he suffered severe pain in the neighborhood of the roots and some swelling, which increased so as to involve the cheek adjacent to it. Three days later a blackish slough commenced to form and the patient applied for treatment to the Dental Hospital of London, where he was ordered a mouth-wash. Two days later he again went to the hospital, and, when seen by the surgeon, was found to have a blackish slough, separated by a distinct line of demarcation from the surrounding tissues, which were much inflamed. The slough occupied the region of the upper left molar teeth and extended inward into the palate, involving it to a considerable extent. The temperature was 102.6° F.; pulse-rate, 120; the tongue was foul and the patient looked ill. The patient was sent to Charing Cross Hospital, where he was admitted, and having been anæsthetized the slough was freely scraped away and the tissues cauterized with pure carbolic. In spite of this treatment another slough formed, the adjacent

teeth became loose, and the bone was stripped and laid bare by burrowing pus, which could be freely squeezed out. The patient was again anæsthetized and the parts were again freely scraped. Owing to great respiratory embarrassment during the anæsthesia tracheotomy was performed. The edges of this wound also showed signs of sloughing, and gradually the patient sank and died.

Current News.

CIRCULAR LETTER OF THE FOREIGN RELATIONS COMMITTEE OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES OF AMERICA.

To all who feel any concern in American educational matters, or in American professional affairs, the annual meetings to be held at Niagara this summer must prove of the greatest possible interest. It is probable that grave questions, more profoundly affecting the welfare of dentistry, will be discussed and it is hoped settled at that time, than have ever been raised in American dental meetings. The far-reaching subjects that loudly demand consideration concern not America alone, but Europe as well. If dentistry is ever to become a profession in fact as well as in name, if it is ever to occupy the position to which advanced men believe it to be entitled, the professional status and tone in both continents must be brought somewhere near the same level. The future welfare of mankind demands there should be some common understanding of professional affairs.

The first dental school was established in America, and for many years the only institutions for professional training were confined to this country. The Dental Doctor's degree is even now peculiar to American dental schools. For many years, through their excellent practical training, they made American dentistry a synonym for the highest practical efficiency. Then for a time our schools lost ground, and their fair fame became tarnished through the misconduct of some of them, and the criminal laxness of the laws in certain of the States, which permitted the incorporation of fraudulent colleges that sold their doubtful honors abroad and at home, or granted them *in absentia*. It was not until the organization of the National Association of Dental Faculties that any

concerted and determined effort to restore the tone of American dental colleges was made, or any practical attempt to bring them to a higher plane, and to force the fraudulent institutions out of existence.

As the natural consequence of the loose methods and legislation of the past, the reputation of the schools that were doing faithful work and maintaining a high standard suffered from the faults of those which were in the habit of receiving unqualified students from abroad, and whose curriculum of study was altogether insufficient. To those not intimately acquainted with American educational matters, there were no means of distinguishing between the good and the bad colleges. All were, by unthinking and uninformed people, charged with the irregularities of the few, and the consequence has been that the reputation of our educational institutions in general has suffered.

Nor was there any complete understanding among the colleges which did desire to maintain a proper standard. Each of our nearly fifty separate States is autonomous so far as education is concerned, that being one of the matters left to domestic regulation by the general government. There can be no compulsory harmony of action, for each college is in a measure a law unto itself, within the limits of State regulation. So long as there was no harmonious concert of procedure, the result of a common agreement and understanding between the different schools, whose sole source of income was from the students in attendance, the strife for matriculants and patronage almost necessarily led to a depression of the standard, and too often to irregular graduations.

In the absence of a common law regulating the course of study, some general agreement became a necessity for the maintenance of a proper educational status. To accomplish this the National Association of Dental Faculties was formed. At the date of its organization the general tone had been so much depressed that it was impossible to establish such a standard for matriculation and graduation as was desirable, but only such colleges were admitted as had the proper facilities for complete instruction, and were conducted by a corps of competent teachers. All other schools were excluded, and their tickets certifying to attendance upon lectures, with their diplomas, were refused recognition by the colleges belonging to the Association. Stringent rules governing attendance, instruction, and graduation were adopted, and schools violating them were severely disciplined. The course of study was extended

to three full years, and the semesters gradually lengthened until they included from seven to nine months of each year. The curriculum was expanded, until it comprised all the branches of study which the growth of modern professional practice has made necessary. As a consequence, it is believed that each and every one of the colleges embraced in the membership of the National Association of Dental Faculties is now giving thorough professional instruction, and is receiving no students who cannot present the evidence of a fair preliminary education. This has been the work of years, for it was impracticable and unwise to make the transition too abrupt. There is much yet to be accomplished, but the Association can point with pride to past achievements, and urge them as a guarantee for its future action.

Two years ago, at the instigation of some of our American graduates abroad, the National Association appointed a standing committee, to be called the Committee of Foreign Relations, whose duty it should be to take into consideration the condition of the American Dental Degree in Europe, and to institute such measures as would prevent the reception of unqualified foreign students by our schools, and to endeavor to give a better understanding of American educational affairs in Europe. It was given authority to appoint European boards for the purpose of furthering the objects committed to its care, and it was also charged with the attempt to suppress fraudulent and unrecognized American colleges, plenary powers to use Association funds, and even to levy assessments, being bestowed upon it. These extraordinary prerogatives betokened the intense interest which the representatives of the colleges felt in the work. The committee so appointed has labored anxiously and uninterruptedly. It has named the nucleus of a European organization, which it is hoped will be of great benefit to dental educational interests. It has carried on a suit against the most flagrant irregular institution, and has secured a decree condemning it. Before this could be made effective, it became apparent that the repeal of some of the vicious legislation under which incorporation of fraudulent colleges was possible must be secured, and accordingly, in the State of Illinois, bills to accomplish this were introduced, and against strenuous opposition were pushed through the Legislature and have become laws. It is believed that if the committee is sustained by the united voice of the profession its future labors will be more easy, and the entire suppression of all fraudulent schools will be accomplished.

We believe there will be none to dispute the assertion that in the teaching of practical dentistry the dental schools of America have not been excelled by those of any other country. The trouble has been that, for lack of general legislative regulation, the standard of preliminary study has been too low. It is utterly impracticable to raise this to the proper point at one time. Until there shall be a public sentiment created that will sustain effective enactments, it is idle to attempt drastic measures. Such action would only divide the profession and exclude schools which, if the proper time can be given, must of themselves raise their standard to the right level. A regulation that is but a dead letter is far worse than none at all, for it brings law into disrepute. It is utterly hopeless to look for harmony of action through separate State enactments. There must first be an agreement among the representatives of the profession, and then unanimity of action on the part of those of all the States. The attempts at repressive or compulsory action through the different State Legislatures as a primary measure must inevitably result, as it has already done, in a yet greater diversity of laws, and more intense antagonism of professional feeling between different sections. It cannot but end in dividing the profession into two adverse and discordant parties, and the perpetuation of the fraudulent colleges, which it will be impossible to suppress except by unanimity of action. The violent and arbitrary laws already enacted, which encourage and foster bitter animosities, tend to defeat that harmony which alone can bring satisfactory results. If a part of our colleges, existing in the more recently settled and less educationally advanced portions of our common country, are refused recognition and fraternization because they are unable, from lack of time in which to adapt themselves to the changed requirements, to comply with those of a greatly advanced standard, they will thereby be forced into an unprofessional attitude, and will thus perpetuate the existence of irregular American dental schools, to the continued reproach and disgrace of our professional name. We believe it to be far better to advance gradually, but as fast as existing conditions will permit. Hence we deprecate drastic measures, or arbitrary and despotic action. No man or set of men can by independent movements dominate a profession of the dimensions to which dentistry has grown. A proper professional feeling must be a thing for time to bring about. Confidence is said to be a plant of slow growth, and this is eminently true in professional matters.

The wonderful progress made within a few years, under the administration of the National Association of Dental Faculties, leads us to hope that if it is permitted to pursue its own course it will, in a comparatively short time, bring all our colleges up to a point of perfection unattainable by any other means than this mutual agreement and harmony of action. The past is a guarantee for the future, and so long as such rapid progress is being made, it is worse than folly to attempt any violent measures that can be only problematical in their results.

There will be a series of meetings held at Niagara this summer that can but exercise an overwhelming influence for good or evil on our whole professional future. It is earnestly desired that all who take any interest in our educational affairs will be present at one or more of these meetings. Especially is it important that there be a full consultation between representatives of the colleges and their representative graduates resident in Europe. It is hoped that as many of them as possible will be in attendance, and that so far as is practicable every member of the European Advisory Board will make the pilgrimage to Niagara in July. Nor need the attendance of dentists from abroad be restricted to those thus appointed. The members of the Association will gladly welcome and seek the counsels of any reputable dentist resident in a foreign country.

The meeting of the Foreign Relations Committee will be held at Niagara, commencing on the morning of July 26. The assembling of the parent body, The National Association of Dental Faculties, will doubtless be called for July 28, while the National Dental Association, the meeting of the representative men of the profession at large, will convene August 1. It is desired that foreign representatives in as great numbers as possible will be at Niagara for all these meetings, for while the sessions of the college men have not heretofore been open to strangers, ample opportunity will be given for expression of the views of and consultations with our foreign brethren, and it is within their power to confer lasting benefits upon their profession by making their American *confrères* fully acquainted with the status of professional affairs abroad.

Respectfully submitted,

W. C. BARRETT, H. W. MORGAN,
S. H. GUILFORD, T. W. BROPHY,
J. D. PATTERSON,

Committee on Foreign Relations.

BUFFALO, N. Y., May 20, 1889.

The following is a list of the Dental Colleges of America which at the present time are members of the National Association of Dental Faculties, whose diplomas and tickets alone are recognized and received by the members of the Association.

Alabama.—Birmingham Dental College, Birmingham.

California.—University of California, Dental Department, San Francisco; Dental Department, College of Physicians and Surgeons, San Francisco.

Colorado.—University of Denver, Dental Department, Denver; Colorado College of Dental Surgery, Denver.

District of Columbia.—Columbian University, Dental Department, Washington; Howard University, Dental Department, Washington; National University, Dental Department, Washington.

Georgia.—Atlanta Dental College, Atlanta; Southern Medical College, Dental Department, Atlanta.

Illinois.—Chicago College of Dental Surgery, Chicago; Northwestern University Dental School, Chicago.

Indiana.—Indiana Dental College, Indianapolis.

Iowa.—State University of Iowa, Dental Department, Iowa City.

Kentucky.—Louisville College of Dentistry, Louisville.

Maryland.—Baltimore College of Dental Surgery, Baltimore; Baltimore Medical College, Dental Department, Baltimore; University of Maryland, Dental Department, Baltimore.

Massachusetts.—Boston Dental College, Boston; Harvard University, Dental Department, Boston.

Michigan.—University of Michigan, Dental Department, Ann Arbor; Detroit College of Medicine, Dental Department, Detroit.

Minnesota.—University of Minnesota, College of Dentistry, Minneapolis.

Missouri.—Kansas City Dental College, Kansas City; Western Dental College, Kansas City; Dental Department Marion-Sims College of Medicine, St. Louis; Missouri Dental College, St. Louis.

Nebraska.—University of Omaha, Dental Department, Omaha.

New York.—University of Buffalo, Dental Department, Buffalo; New York College of Dentistry, New York; New York Dental School, New York.

Ohio.—Cincinnati College of Dental Surgery, Cincinnati; Ohio College of Dental Surgery, Cincinnati; Western Reserve University, Dental Department, Cleveland; Ohio Medical University, Dental Department, Columbus.

Pennsylvania.—Pennsylvania College of Dental Surgery, Philadelphia; Philadelphia Dental College, Philadelphia; University of Pennsylvania, Dental Department, Philadelphia; Pittsburg Dental College, Pittsburg.

Tennessee.—Tennessee Medical College, Dental Department, Knoxville; School of Dentistry, Central Tennessee College, Knoxville; University of Tennessee, Dental Department, Nashville; Vanderbilt University, Dental Department, Nashville.

Virginia.—University College of Medicine, Dental Department, Richmond.

Washington.—Tacoma College of Dental Surgery, Tacoma.

Wisconsin.—Milwaukee Medical College, Dental Department, Milwaukee.

Canada.—Royal College Dental Surgeons of Ontario, Toronto.

The following appointments to membership in the European Advisory Board have been made. The vacancies will be filled at the meeting of the Foreign Relations Committee to be held at Niagara, commencing July 26, prox.

Great Britain, WM. MITCHELL; Holland and Belgium, J. E. GREYERS; Denmark, Norway, and Sweden, ELOF FÖRBERG; Russia, ———; Germany, ———; Austria and Hungary, ———; Italy and Greece, ALBERT T. WEBB; France, J. H. SPAULDING; Spain and Portugal, ———; Switzerland and Turkey, L. C. BRYAN.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

THE next annual session will be held at Niagara Falls, N. Y., at the International Hotel, commencing at ten A.M., Friday, July 28, and continuing Saturday, 29, and Monday, 31, adjourning in time for the opening of the National Association on Tuesday. It is hoped that delegates from every State will be present. As this session is some days ahead of the National, please write and secure your rooms as members of National Association of Dental Examiners. The rates will be \$3.00, \$3.50, and \$4.00 per day, according to the location of the rooms.

CHARLES A. MEEKER,
Secretary.

29 FULTON STREET, NEWARK, N. J.

NEW JERSEY STATE DENTAL SOCIETY.

THE Twenty-ninth Annual Session will convene at the Auditorium, Asbury Park, at ten A.M., Wednesday, July 19, and continue the 20th and 21st. The hotel head-quarters will be at the Hotel Columbia, the rates will be \$2.50 per day, two in a room; \$3.00 per day, one in a room.

The demonstration of porcelain inlay work will receive more than usual attention. Dr. Jenkins, of Dresden, will give a clinic with the Jenkins furnace, and read a paper on the subject. Dr. Joseph Head, of Philadelphia, will also clinic with the electric furnace and read a paper; Dr. W. A. Chupein, of Philadelphia, will also demonstrate his method of inlay work, and read a paper.

The exhibition of electrical appliances for the dentist will be of more than usual interest and of greater variety than usually seen at dental meetings. The clinics generally will be practical and of useful interest to the every-day working dentist.

Secure your rooms by July 1, and come and see our methods.

CHARLES A. MEEKER, D.D.S.,

Secretary.

CALIFORNIA STATE BOARD OF DENTAL EXAMINERS.

THE next meeting of the California State Board of Dental Examiners, for examination of candidates for license to practise, will begin, at nine A.M., first Tuesday in August, 1899, in San Francisco.

W. A. MOORE,

Secretary.

WISCONSIN STATE DENTAL SOCIETY.

THE Twenty-ninth Annual Meeting of the Wisconsin State Dental Society will be held in the Assembly Chamber, Capital Building, Madison, Wis., July 18, 19, and 20, 1899. A cordial invitation is extended to all members of the profession to be present.

The State Board of Dental Examiners will meet at the same time and place to examine candidates for license to practise.

W. H. MUELLER,

Secretary.

MADISON, WIS.

NATIONAL DENTAL ASSOCIATION.

THE next annual meeting of the National Dental Association will be held at Niagara Falls, N. Y., commencing on Tuesday, August 1, 1899.

GEO. H. CUSHING,
Recording Secretary.

Railroad arrangements for the meeting of the National Dental Association have not yet been completed. A rate of one and one-third fare, on the certificate plan, has been granted by some of the Railroad Associations. I have not had replies from all of them, but think I will have within a week, and that all will grant this concession.

Wednesday, August 2, has been arranged as the day in which the special agent of the Railroad Associations will be at a meeting to qualify certificates. All attending should be sure to get certificates when purchasing tickets going from ticket agent, otherwise they will not be entitled to the reduction upon the return tickets. Tickets for reduced rate will be good going July 24 to 27 inclusive, and returning not later than August 9.

Reports from secretaries of sections have not been received sufficiently definite to enable me to issue at this time a complete literary programme.

J. N. CROUSE,
Chairman Executive Committee.

The following corrections in the list of papers to be read at the National Dental Association is made by request of the President, Dr. H. J. Burkhart:

"The Physiological Relation of the Adult Tooth-Pulp to the Economy," C. L. Hungerford, Kansas City, Mo.

"Etiology of Gnathic Abnormalities," A. H. Thompson, Topeka, Kan.

"Dies and Counter-Dies," Robert H. Nones, Philadelphia, Pa.

"The Dental Profession in Charity: An Experiment in Chicago," Carl Theodore Gramm, Chicago, Ill.

"Some New Points in the Anatomy of the Face and Jaws," M. H. Cryer, Philadelphia, Pa.

Also an important paper by Dr. Williams, of London, England.

AMERICAN DENTAL SOCIETY OF EUROPE.

THE Twenty-sixth Annual Meeting of the American Dental Society of Europe will be held in Brussels, on August 7, 8, and 9, 1899.

Arrangements have been made at the Hotel Metropole for the accommodation of the members and their friends, while the meetings will be held at the Hotel Ravenstein.

Brussels and its surroundings are noted for their beauty and historical interest, and no effort is being spared by the Executive Committee to make the meeting especially instructive and pleasant.

A cordial invitation is extended to any American colleague who may, at the time, be visiting Europe.

WALDO E. ROYCE,

Secretary.

2, LONSDALE GARDENS, TUNBRIDGE WELLS, ENGLAND.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

At the Thirty-first Annual Meeting of the Dental Society of the State of New York, held in Albany, May 10 and 11, 1899, the following officers were elected for the ensuing year: President, F. Le Grand Ames, Albany; Vice-President, J. I. Hart, New York; Secretary, W. A. White, Phelps; Treasurer, C. W. Stainton, Buffalo; Correspondent, R. Ottolengui, New York.

MAINE DENTAL SOCIETY.

THE Thirty-fourth Annual Meeting of the Maine Dental Society will be held in Pittsfield, Me., July 18 and 19, 1899. All members of the dental profession are cordially invited to attend the sessions.

H. A. KELLEY,

Secretary.

609 CONGRESS STREET, PORTLAND, ME.

TENNESSEE DENTAL ASSOCIATION.

THE Thirty-second Annual Meeting of the Tennessee Dental Association will be held July 4 to 6, 1899, on Lookout Mountain, Chattanooga. An interesting programme has been arranged, and a cordial invitation is extended to the profession to be present.

N. C. LEONARD, *President*.

A. SIDNEY PAGE, *Secretary*.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

THE following officers were elected for the ensuing year: President, C. S. Hardy, D.D.S., Summit; Vice-President, H. S. Sutphen, D.D.S., 24 East Kinney Street, Newark; Secretary, C. W. F. Holbrook, D.D.S., 2 Saybrook Place, Newark; Treasurer, Charles A. Meeker, D.D.S., 29 Fulton Street, Newark.

Executive Committee.—W. L. Fish, D.D.S., chairman, Newark; F. Edsall Riley, D.D.S., Newark; C. W. Hoblitzell, D.D.S., Jersey City; W. H. Pruden, D.D.S., Paterson; Joseph S. Vinson, D.D.S., Newark.

Membership Committee.—F. Edsall Riley, D.D.S., chairman, Newark; W. H. Pruden, D.D.S., Paterson; C. Alfred E. Hane, D.D.S., Jersey City.

Committee on Ethics.—H. S. Sutphen, D.D.S., chairman, Newark; C. A. Allen, D.D.S., Rutherford; C. Alfred E. Hane, D.D.S., Jersey City.

C. W. F. HOLBROOK,
Secretary.

THE International Dental Journal.

VOL. XX.

AUGUST, 1899.

No. 8.

Original Communications.¹

THE NEURON CONCEPTION AS A MEANS OF INTERPRETING REFLEX DISORDERS DUE TO DENTAL IRRITATION.²

BY DR. ALBERT P. BRUBAKER, PHILADELPHIA.

SEVERAL years ago I collated and published ("American System of Dentistry," vol. iii. p. 435) a series of clinical cases, medical, dental, and neurological, which it was believed for many reasons were reflex in origin, the result of abnormal irritation present in the teeth or in their associated structures. In this paper no attempt was made to classify these cases on the basis of their pathology. They were arranged merely for convenience of presentation and consideration into three groups as follows:

1. Affections of peripheral organs,—*e.g.*, ocular, aural, muscular, visceral, and vasomotor.
2. Affections of nerves and subordinate nerve-centres,—*e.g.*, facial and other neuralgias, paresis, paralyses, and tetanus.
3. Affections of cerebral centres,—*e.g.*, headache, epilepsy, chorea, hysteria, and insanity.

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read before the Academy of Stomatology, February, 1899.

A study, however, of these cases in the light of modern knowledge makes it apparent that they may be classified in a manner more in accordance with physiologic processes. The visible phenomena may be either *motor*, relating to muscles, *vasomotor*, relating to the vascular apparatus, or *secretory*, relating to glands. Again, any motor, vasomotor, or secretory phenomenon may be either one of increased activity, as muscular spasm, contraction of blood-vessels, increased secretion, or one of decreased activity, as muscular paralysis, dilatation of blood-vessels, and diminished secretion. The invisible phenomena are sensory in character. The sensations experienced by the individual possess varying degrees of intensity, varying periods of duration, followed by periods of suspension, even when the cause which has been operative has not been removed and is apparently in continuous action.

It was also stated in the paper alluded to that no attempt was made to explain the mechanism of a normal reflex action, or the derangements of mechanism by which these pathologic conditions were brought about. This for the reason that the histologic and physiologic facts at command were not sufficient to enable me to present a satisfactory theory, at least as to the nature of either the normal or abnormal process.

Within recent years a number of very interesting and instructive facts relating to the histology of the nervous system have been disclosed, which, if we are correct in our interpretation of them, throw much light on the nature of reflex action, both under normal and abnormal conditions.

In the paper which I present this evening, entitled "The Neuron Conception as a Means of interpreting Reflex Disorders due to Dental Irritation," an attempt will be made to briefly place these facts before you, and then apply them to the interpretation of the pathologic conditions under consideration. In order that the problem may be made somewhat clearer, a brief reference to what is comprehended by the term reflex action may not be inappropriate. All the muscular movements of the body are caused by the transmission to the muscles of nerve impulses or nerve energy, the path of transmission being the anterior or efferent roots of the spinal nerves and the efferent roots of the cranial nerves. The source of the energy in all instances is the nerve-cells residing in the gray matter of the spinal cord and medulla oblongata, and with which all the efferent fibres are connected. The discharge of energy by these cells and its transmission to the muscles is invariably fol-

lowed by a contraction of greater or less intensity, in accordance with the amount of the energy the muscles receive.

The nerve-cells, however, do not in themselves possess spontaneity of action, but require for their activity a stimulus, which may come either from the brain or the general periphery of the body. If the stimulus comes from the brain, the resultant con-

FIG. 1.

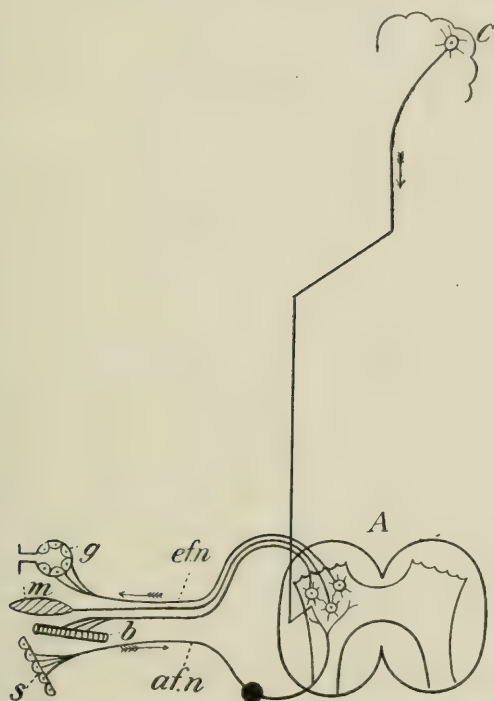


Diagram showing structures connected with voluntary and reflex actions: *A*, transverse section of spinal cord with centres in the anterior horn of the gray matter for muscles, *m*, glands, *g*, and blood-vessels, *b*; *ef.n*, efferent nerves which convey nerve impulses to these organs; *s*, sensory surface; *af.n*, afferent nerve conveying nerve impulses to the centres in the spinal cord; *C*, cerebral cortex from which pass nerve-fibres to the spinal cord and which convey the volitional nerve impulses.

traction is termed a direct or voluntary action. If it comes from the periphery, it is termed an indirect, involuntary, or reflex action. (Fig. 1.) Though these two forms of activity interblend in the general activities of the body, the former may be eliminated by the induction of sleep, by narcosis from chloroform, ether, morphine,

etc., or, in the case of the lower animals, like the frog, by the removal, under anæsthesia, of the brain itself. A frog so prepared will be incapable of executing spontaneous movements, and will remain perfectly passive for an indefinite period of time. When a frog, under such circumstances, is suspended and an irritation—*e.g.*, a weak solution of sulphuric acid—be applied to the skin of the toes, there will follow in a few seconds a contraction of the muscles of the leg, which will continue for a varying period of time, as long as the irritant is active. With the prompt removal of the acid the muscular contraction as speedily subsides. Increasing strengths of the acid solution induce correspondingly vigorous contractions. (An experiment illustrating these statements was then made.) The explanation of such a phenomenon may be given, in a general way, as follows: The acid, in consequence of the chemical changes it induces in the skin and the associated nerve-endings, gives rise to nerve impulses, which are transmitted through the posterior or afferent roots of the spinal nerves to the spinal cord and received by the nerve-cells; these latter, in consequence of the stimulation, discharge nerve impulses, which are transmitted to the muscles, which in turn contract. The muscular action, being the result of a stimulation reflected from the periphery (skin), is termed a reflex action. Coincident with the muscular contraction, in various regions of the body there is frequently associated a variation in the caliber of the blood-vessels and an output of the secretion of different glands. The stimulation of the sensory nerves of the mucous membrane of the stomach by food induces a reflex contraction of the muscular walls of the stomach, a dilatation of the blood-vessels, and an output of gastric juice from the gastric glands. Exactly similar reflex actions may and do take place constantly through the sensory and motor cranial nerves. The trifacial nerve, on account of its extensive peripheral distribution as well as its central connections with all the cranial motor nerves, is intimately related to and connected with a very large number of normal as well as abnormal reflex actions.

The structures involved in all reflexes may be summarized as follows:

1. Sentient surface,—skin, mucous membrane, and sense organ.
2. An afferent nerve.
3. An emissive cell, from which arises—
4. An efferent nerve, distributed to a responsive organ, as
5. Muscle, gland, blood-vessel, etc. (Fig. 2.)

As simple, apparently, as the mechanism of a normal reflex action is, its interpretation was a matter of much difficulty not a

FIG. 2.

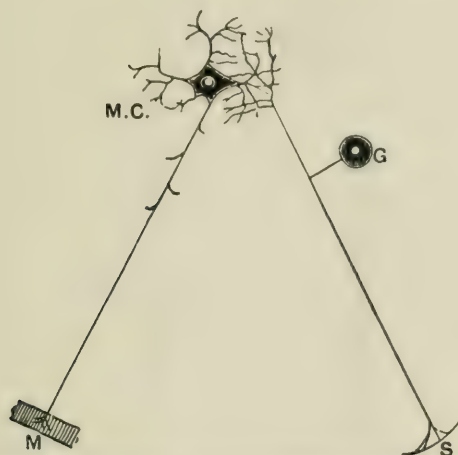


Diagram illustrating reflex action : *S*, sentient surface from which proceeds the afferent nerve; *M C*, motor or emissive cell giving origin to an efferent nerve, which terminates in *M*; *M*, motor organ; *G*, ganglion on posterior root.

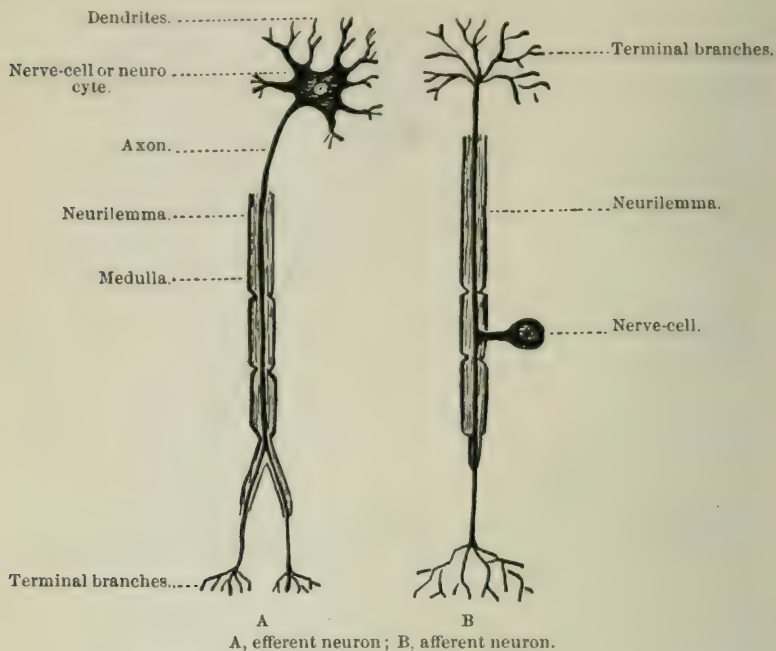
very long time ago. Still more difficult was it to interpret its inhibition or its irregular manifestations. At the present time, with new facts relating to the structure of nerve-cells, the problems are somewhat clearer.

THE NEURON.

Within quite recent times the old conception that the nervous system consisted of two distinct histologic elements,—nerve-cells and nerve-fibres,—which not only differed in their mode of origin, their properties, their relation to each other, and their functions, has been entirely disproven. The nerve-tissue has been resolved by the investigations of modern histologists to a single morphologic unit, to which the term neuron has been given. The entire nervous system has been shown to be but an aggregation of an infinite number of neurons, each of which is histologically distinct and independent. The neuron or neurologic unit is histologically a nerve-cell, the surface of which presents a greater or less number of processes in varying degrees of differentiation. As represented in Fig. 3, the neuron may be said to consist of: 1, the nerve-cell, neuro-

cyte or corpus; 2, the nerve-process or axon; 3, the end tufts or terminal branches.

FIG. 3.



The nerve-cell, or the body of the neuron, presents a variety of shapes and sizes in various parts of the nervous system. From the surface of the adult cell portions of its protoplasm are projected in various directions, which, rapidly dividing and subdividing, form a series of branches termed *dendrites* or *dendrons*. In some situations the ultimate branches of the dendrites present short lateral processes or buds, known as *lateral buds* or *gemmules*, which impart to the branches a feathery appearance. This characteristic is common to the cells of the cortex of the cerebrum and cerebellum. The ultimate branches of the dendrites, though forming an intricate felt-work, never anastomose with one another nor unite with dendrites of adjoining cells. According to the number of axons nerve-cells are classified as monaxonie, diaxonie, or polyaxonie. Most of the cells of the higher vertebrates are monaxonie. In the ganglion of the posterior roots of the spinal and cranial nerves, however, they are diaxonie. In this situation the axons, emerging from opposite poles of the cell, either remain separate

and pursue opposite directions or unite to form a common stem, which subsequently divides into two branches, which then pursue opposite directions.

The *axon* or nerve-process arises from a cone-shaped projection from the surface of the cell, and is the first outgrowth from its protoplasm. At a short distance from its origin it becomes markedly differentiated from the dendrites, which subsequently develop. It is characterized by a sharp, regular outline, a uniform diameter, and a hyaline appearance. At a variable distance from the cells the axons, especially those forming the spinal nerve system, become invested with a myelin sheath and a neurilemma, thus constituting what is known as a medullated nerve-fibre. The end tufts, or terminal branches, are formed by the splitting of the axon into a number of filaments, which remain independent of one another, and are free from medullary investment. The histologic peculiarities of the terminal organs vary in different situations, and in many instances are quite complex and characteristic. In peripheral organs, as muscles, glands, blood-vessels, skin, mucous membrane, etc., the tufts are in direct organic connection with their cellular elements. In the central nervous system the tufts are in more or less intimate relation with the dendrites and adjacent neurocytes.

From this point of view, then, all the cranial motor nerves and the anterior roots of the spinal nerves are neurons, whose bodies or neurocytes with their system of dendrites are situated in the gray matter of the medulla oblongata and spinal cord, and from which axons have grown outward to put themselves into relation with peripheral organs, as muscles, blood-vessels, glands, etc. Having but one axon which transmits nerve force outward, they are termed monaxonic efferent neurons.

In like manner all the cranial sensory nerves and the posterior roots of the spinal nerves are neurons, whose bodies or neurocytes are found in the ganglia of the posterior roots, and from which two axons primarily develop, one of which grows outward towards the periphery (skin and mucous membrane), the other grows inward to put itself, by means of its terminal branches, into intimate physiologic relation, at least, with the dendrites of the adjoining neurocytes. Having two axons which transmit nerve force inward, they are known as diaxonic afferent neurons. A study of the developmental stages of these afferent or sensory nerves (Fig. 4) shows that they develop from the ganglia, practically outside of the central

nervous system, and only subsequently become connected with it. This fact has an important bearing on the relations of the fifth nerve to its associated structures.

FIG. 4.

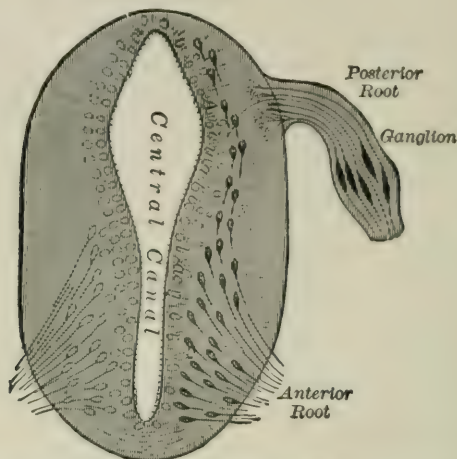


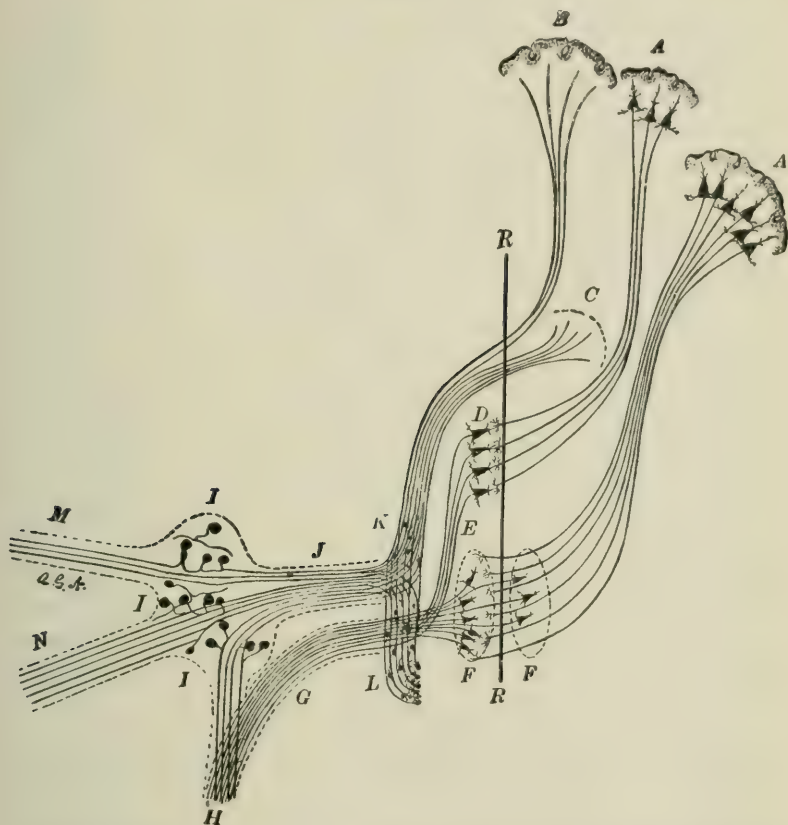
Diagram showing the mode of origin of the anterior and posterior roots, or the efferent and afferent neurons.

THE FIFTH OR TRIFACIAL NERVE AS A COLLECTION OF NEURONS.

The fibres which collectively make up the fifth or trifacial nerve must be considered, in the light of present knowledge, as having their origin in the Gasserian ganglion rather than in the medulla oblongata. (Fig. 5.) This ganglion is to be regarded as an enormous collection of neurocytes embedded in connective tissue, each of which gives origin, in the early stages of development, to two axons, which, however, soon shift their position and blend together to form a common stem. This stem, at a short distance from the neurocyte, then divides into two portions, one of which passes towards the periphery to enter into the formation of the ophthalmic, the superior or inferior maxillary division, as the case may be; the other passes towards the medulla oblongata, where its terminal branches come into physiologic relation with the dendrites of the neurocytes or nerve-cells, which give origin to the axons or nerve-fibres, which constitute the various cranial motor nerves or efferent neurons. It is quite probable that subsequent investigations will demonstrate the truth of the supposition that the different peripheral sensory areas, to which the different branches of the fifth nerve

are distributed, will be found to be in direct physiologic connection with muscular, vascular, and secretory areas through related efferent fibres. With this anatomical arrangement in mind, it becomes possible to interpret normal as well as abnormal reflexes.

FIG. 5.



Scheme of trigeminal apparatus: *A, A*, cortical centres for trigeminal movements; *B*, cortical terminus of the trigeminal sensory tract; *C*, thalamus to which the central trigeminal sensory tract may be in large part distributed; *D*, accessory (motor) nucleus; *E*, descending (mesencephalic) root; *F*, chief motor nucleus; *G*, motor roots; *H*, inferior maxillary nerve; *I*, Gasserian ganglion; *J*, sensory roots between the Gasserian ganglion and the pons; *K*, ascending sensory root; *L*, descending (spinal) root; *M*, first or ophthalmic division of the trigeminus; *N*, second or superior maxillary division.

A stimulus, for example, whether mechanical, chemical, or physical, applied to any one of the peripheral terminal branches, will, as is well known, develop a series of nerve impulses, which will be transmitted through corresponding nerve-fibres to the medulla,

where they will be distributed by the central terminal branches. These nerve impulses will be then taken up by the dendrites of the related neurocytes or nerve-cells, by which in turn they are transmitted to the peripheral organs, with the production of a movement. Should the stimulus possess an intensity beyond that which is termed normal, or should it be continuous in character, the resulting reflex becomes more pronounced or continuous, and the muscle passes into the condition of spasm, as in the case of trismus, from the persistent irritation of an erupting wisdom-tooth, spasm of the walls of the blood-vessels, as in migraine, excessive secretion, as profuse lachrymation from the irritation of impacted cuspid teeth. (For illustrative cases, see "*Reflex Neuroses*," "*American System of Dentistry*.") With the removal of the source of irritation the phenomena just stated subsided, and the structures involved return to their normal physiologic condition.

It will be remembered, however, that among the pathologic conditions attributed to dental irritation there are some characterized by the opposite of the foregoing condition,—namely, paresis or paralysis of muscles, vascular dilatation, and diminished secretion. These also should be capable of explanation. Now, it has been stated that as long as the connection between the end branches of the afferent neurons and the dendrites of the cells is physiologic the reflexes are normal. If, however, this connection should be broken, there will be no means for the transmission of the nerve energy to the nerve-cells, and, in consequence, there will be a diminution or abolition of all reflexes. The peripheral organs not receiving their accustomed stimuli, become passive and inactive.

The severance of the connection between the end branches and the dendrites, though not at the time capable of demonstration, is believed, for many reasons, to be a fact, and to be due to a retraction of the dendrites in consequence of excessive stimulation and activity of the cell. The neuron is not a fixed histologic but a living physiologic unit, endowed with a certain degree of motility, especially in its dendritic portions. It is believed that the cell is capable of retracting and extending its dendrites from time to time, in accordance with its physiologic necessities. With the retraction of the dendrites nerve impulses cannot be transmitted or received, and physiologic action must of necessity cease. That it is the dendrites that are retracted rather than the terminals of the afferent neurons is rendered probable by the fact that the indi-

vidual cannot execute a voluntary movement with the muscles which are in the condition of paresis or paralysis, which would otherwise be the case.

In the early part of this paper it was stated that among the results of abnormal dental irritation are sensations of pain, possessing varying degrees of intensity, varying periods of duration, followed by periods of cessation, even when the pathologic condition of the teeth remains the same, and in apparently continuous action. An explanation of these facts is afforded by reference to the same mechanism. When nerve impulses, arising in consequence of peripheral irritation, are transmitted by the afferent nerves to the central nervous system, they are received by the dendrites of nerve-cells, and transmitted to the cerebral cortex. With the reception of the nerve impulses by these cells and their dendrites, a molecular disturbance at once takes place. Coincident with this disturbance there arises that which is termed a sensation, the intensity of which will depend on the strength of the primary stimulus. Though the sensation is a *psychical* fact, the mind refers the sensation, as a rule, to the point of stimulation, though this is not invariably the case. It is a well-known fact, for example, that the mind refers the sensation of toothache not infrequently to the side of the jaw opposite to that of the lesion, as well as to other regions of the face and head. If the stimulus at the terminal of the trifacial nerve is continuous, and if it possesses sufficient intensity, the resulting sensation acquires that degree of intensity characteristic of trifacial neuralgia. With the removal of the irritation the cell stimulation and activity subside and the painful sensation disappears. Should the nerve-cells of the cerebral cortex become exhausted and retract their dendritic processes, their functional activity, characterized by the production of a sensation, would cease even though the peripheral irritation remained unchanged. With the restitution of the nerve-cells and an extension again of their dendrites, there would be a re-establishment of the physiologic connection, after which the cells would resume their original activity, with a return of the painful sensations.

Though the conception of the neuron may in the future be subject to some modifications, yet it can hardly be doubted that the histologic or physiologic facts which have been discovered are in the main true. With the progress of investigation into the mode of activity of neurons in general many hitherto obscure and complex phenomena, both normal and pathologic, will gradually be inter-

preted and made clear. It was with this idea that the foregoing pages were presented this evening. The conception of the trifacial nerve as a collection of individual afferent neurons, the origin of which is in the Gasserian ganglion, and the central terminal branches of which are in physiologic connection both with efferent motor centres and with cerebral sensory centres,—this anatomic conception, taken in connection with what is known as to the physiologic action of neurons in general, will enable any one to more accurately interpret all of the ordinary reflexes which fall under the notice of the dental practitioner.

THE ETHICAL ADVERTISER.¹

BY F. T. ROGERS, M.D., PROVIDENCE, R. I.

WERE any excuse needed for this, a plea for the exercise of common sense and the elimination of prejudice in the consideration of our relations as physicians to the public and to the profession at large, it would be found in the fact that not only are the provisions of the code of ethics regarding advertising misunderstood by many and persistently disregarded by more, but there seems to be an impression that the clause of Article I., Section 1, which says that the physician should entertain a due respect for his seniors who have by their labors brought it to the elevated condition in which he finds it, concedes to the older members certain advertising privileges denied to the younger.

That the provisions are misunderstood is evidenced by the following extract from an editorial in an influential medical journal:

"The Advertising Physician and the Code.—A physician may advertise with perfect propriety, provided he confines the wording of the advertisement within the limits prescribed by the code of ethics. It is perfectly legitimate for him to put his professional card in the newspapers, this card announcing his name, degree, and address, also his office hours and telephone connections, if he should desire to add these. He may even announce in his card that he is doing special work, or is giving his time and attention to one or more special lines of practice, provided his advertisement reads

¹ Read before the American Academy of Dental Science, February 1, 1899.

'practice limited to' these special lines. He cannot say 'special attention given to' any particular class of cases without violating the code."

The American Medical Association has nevertheless distinctly declared that cards in medical journals calling the attention of professional brethren to themselves as specialists are in violation of the code of ethics.

That the provisions are disregarded is a fact known to us all. When the physician occupied a unique position in the community, when the degree of doctor of medicine was synonymous with education and accorded to its possessor all the dignity of a member of a learned profession, when overcrowded ranks with the struggle for, not honor and emoluments, but existence had not aroused the petty jealousies and acrimonious competition which marks our life to-day, the code of ethics represented all that was honorable and worthy of emulation in our professional life, but is, in its entirety, no more adapted to our needs to-day than is the Declaration of Independence to our ultimatum to Spain upon the Cuban question.

The underlying principles are undoubtedly true, but their applicability to the changed conditions of this the close of the nineteenth century, are so susceptible of various interpretation that they might as well not exist.

The incongruities alone displayed by the adherents of the code are enough to invalidate its provisions and in no one thing is this more marked than in the way we advertise our calling and incidentally our own peculiar virtues and qualifications. Yielding to none in admiration of the high calling of our profession, of the blessedness of administering to the ills of mankind, the alleviation of suffering and comfort to the afflicted, it is nevertheless true that we all of us to-day practise medicine for the livelihood it affords us; that we are enabled to do our duty to the State as good citizens, to maintain our families, to educate our children, solely by the remuneration gained by the exercise of our knowledge and skill.

Does any one deny this? Then he looks upon facts through an astigmatism I cannot measure and he and I are not taught in the same school of logic, and argument is uncalled for; but if agreed we are brought face to face with the condition which affronts every student of medicine when with diploma and license in hand he stands at the threshold of life and asks himself, Having complied with the laws of my country, the requirements of my university,

the exactions of the code of ethics of my profession, what shall I do to gain a practice and a livelihood?

There was a time when all that was necessary was to announce that he was prepared and ready to practise physic, but that was not A.D. 1899. We allow him in this enlightened age to modestly place his name upon a door-plate, to tell his friends and near neighbors that he is now a practising physician, and, although frowned upon, it is not absolutely forbidden that a short local may appear in the town paper that Dr. A, who recently graduated, etc., is now located in B. Moreover, he is allowed to join the local society, the State society, to call upon the older physicians, but in general he is expected to wait for patients to come to him. Too much energy is not met in one so young, and his merits must be better recognized before he may indulge in the generous advertising that adds dollars and patients to the coffers of his elders.

This same spirit of forgetfulness, not of self, but of others, is found throughout the game of life and the notoriety achieved by newspaper mention, so entirely proper for those whose reputations are made, is but presumption in the young man and considered unseemly advertising. When a fair measure of success meets his long-continued efforts and he seeks the wider field of specialism he meets the same spirit of opposition. He may practise a specialty,—any one, of course, is at liberty to do that,—but he must not tell any one of it; that is reserved for his elders and betters who have been longer in the field.

Alas! that such a discussion is necessary; that we cannot live in peace and harmony, assured that our merits will be appreciated and that we shall receive due reward for our patient and painstaking study and the years of preparation; but we live in a commercial age teeming with activity, filled with energy, when it is not always the survival of the fittest, but often of the cheekiest, which occurs, and we are, in justice to ourselves, our families, and our children, forced to make some extraordinary effort to increase our business and income,—in short, to advertise, and the question is, how to do it.

Recalling our school-boy days, with their dreaded compositions, we may say, as we did then, "There are many ways of advertising, a few of which I will mention."

One method is beyond cavil. Thorough and conscientious preparation, earnest and undivided attention to our profession, avoidance of unseemly conduct, and honesty and manliness in our

relations to the public will advertise our skill, enlarge our reputation, and make our success when nothing else will suffice; and these attributes must be maintained whatever system of advertising we adopt, if we are to succeed, for without them, in the sense in which I employ the word, success is impossible.

Environment should be an important factor in the matter of legitimate advertising. What may be entirely proper in some localities would be manifestly out of place in others. In many of the smaller towns, notably in New England and in the West, it has been the custom of physicians to insert in the local paper and in medical journals a card giving address and office hours. In larger cities this plan is not followed, but it would be a rash assertion to accuse the suburban physician of any great breach of ethics for this action. If it be asserted that such a step would be the entering wedge to the indiscriminate advertising of quackery, we place little reliance upon our own sense of propriety and at once admit our inability to decide for ourselves between right and wrong, relying rather upon some one else to tell us what to do.

The distinction between the professional card in the newspaper and the generous use of editorial or reportorial courtesy in reporting our comings and goings, our patients and operations, as advertisements pure and simple, is hard to define and the advantage is all on the side with the card.

We admit our names, addresses, and office hours to the directory, to the telephone book, and we stamp it on our cards and stationery for the purpose of giving information to the public. Why not go a step farther and allow it to be placed with other professional cards in the local paper for the same reason? Is it any more disreputable than to allow to appear in the daily press such items as "Dr. A, the head surgeon of —— Hospital, last night lectured before the Biological Club upon appendicitis, a subject upon which he is considered an expert;" or, "Mr. A, whose serious illness was chronicled in these columns, is now improving. Dr. B, the eminent surgeon from ——, yesterday performed the successful operation for stone;" or, "Mrs. D, who recently went to —— to consult the famous oculist, Dr. C, has returned with restored sight, the delicate operation for cataract having been successfully performed by the surgeon." Yet these items have appeared in the daily press without complaint, and Drs. A, B, and C are all members of the American Medical Association.

It is no argument to assert that the first form is a paid adver-

tisement and the latter a spontaneous outburst of generous appreciation. We were not born yesterday, and we know that these articles do not, as a rule, appear without tacit consent and oftentimes direct request.

This one feature of newspaper notoriety is the peculiar property of the ethical advertiser, whether garbed as a news item, an interview on some particular disease or its victims, an ostentatious display of degrees or hospital appointments tacked on to the mere mention of his name, the daily bulletin of the attending physician to an invalided public man, or the more transparent form of the wonderful surgical operation or exhaustive discussion before the medical society,—they are all merely an advertisement, and, as such, are either right or wrong.

If right, then the other simpler forms of advertising are right; if wrong, then the offenders should not be the judges of the enormity of the faults of others.

A national society, to which it is an honor to belong, has a by-law which states that any one who announces in any way that he is engaged in special work is ineligible to membership. For this reason honest, capable men, who have practised a specialty for years, who enjoy the esteem of the profession and the community, yet who have, in any way, announced that their practice was limited to a certain branch, are not eligible, while men, who are already members, violate the rule with impunity.

In such a society, which rejected a candidate because, when he ceased general practice and began special work, he sent a printed letter to his own patients which stated that fact, action has not yet been taken to reprimand the member who allowed a daily paper to photograph him in the performance of an operation and, besides describing his skill as an operator, stated specifically his special practice; nor the other member, who allowed a sketch of his life to appear in a Sunday paper with the statement that in his particular line he was unexcelled in this country, that he frequently performed a certain operation in less than a minute, that he caused no pain, had an extensive practice, saw patients from all over this country, and required two assistants in his office.

The letter of the first offender probably reached a few hundred people, the advertisement of this greater offender reached hundreds of thousands, and doubtless it served its purpose, and brought cases to this surgeon which would otherwise never have known of his existence.

In another society the adoption of such a by-law compelled the withdrawal of two members of years' standing who, living in small towns, had followed the custom of that locality, and had inserted in the local paper a card stating that their practice was limited to certain branches of medicine. The adoption of such a rule did not, however, bar another member from reading a paper before a local society and sending a reprint to thousands of the profession with the containing envelope stamped in large type with the title, the author's name and hospital appointments, which thoroughly advertised his specialty. One is an injustice; the other is ethical advertising.

What would happen to the man who, devoting himself to surgery, should send to every physician in his State a card like this:

"I. Bidwell, M.D., LL.D., Professor of Surgery, ——— Medical College; Surgeon to ——— Hospitals; Consulting Surgeon to ——— Hospitals."

Is that an advertisement? Is it ethical? The American Medical Association has on record that it is not. Then is the prospectus of the medical college with its long list of professors and their qualifications an advertisement? So the post-graduate school, and the hundreds of thousands who receive their catalogues are incidentally reminded that in such a city Professor A is a prominent surgeon and a good man to whom he may refer his patients when needing advice in his line.

To multiply examples of similar methods so familiar to us all, to speak of the man who uses his church affiliation, his society, his personal friends, and his family to advance his own interests, to describe the man who works the politics of his town for his own good, or the man who has always patients who are dangerously ill while those of others would recover anyway; the man who is always busy, who delights in quoting his visiting list, enumerating his cases, mentioning his patients by name, and proffering advice for other than his patients would be an implication of ignorance to this body. Neither need we mention the man who sends his name to the medical society as desirous of reading a paper upon some topic, yet who has no intention of so doing; the man who reads a paper, not to announce his opinion, to excite discussion, or to add to the sum of human knowledge, but simply to advertise himself, his methods, his operation, and to have the same properly quoted in the home paper; the man who judiciously sees that the reporter gets an abstract of his paper for the morrow's issue as one of the prin-

cial features of the session; the man who writes a testimonial for pecuniary reasons; the man who tacks his name upon an instrument or operation; nor the man who seizes upon every sort of an object to rehearse his qualifications for the benefit of the public. These are all methods of the ethical advertiser. They are recognized by each of us and we can each recall more than one offender, —doubtless we are somewhat guilty ourselves.

The part a man plays in the drama of life is infinitesimal. The influence of his life is, in most cases, not appreciated. To few of us is granted the power to mould opinion or inaugurate new methods, but the power of a body like the American Academy of Medicine is vastly greater, its seal of approval or disapproval can make or mar, and it is with this idea that I venture to suggest that this subject of advertising is one properly for your consideration.

A recognition of the changed conditions of life, of the mercantile spirit of the age as well as the infractions of the spirit of the code of ethics if not the letter, and a clear statement of what should and should not be considered ethical in this matter, is a task which may well invite your attention.

Gentlemen, this is no wail of a disappointed man, no rebellion against adversity, no socialistic endeavor to controvert existing conditions, but an honest opinion that we need a new chapter to the code of ethics, and that it is the privilege of this body by discussion and action to inaugurate a needed reform. Personal opinion can have but little weight. What I think or what you think is perhaps of little moment, but, nevertheless, I believe that the physician of to-day should have more or less latitude in advertising.

More in a purely medical way, the right to insert a card in medical periodicals, meant only for professional eyes, in the right to assert upon his card and sign that he practises surgery, gynaecology, or ophthalmology, in localities where custom has established a precedent to insert his name and office hours, but not his specialty in the daily press, less latitude in the advertising which reaches the public. The lay press has no part in the life of the physician save to record his obituary. The hundred and one ways of reaching the public through the columns of the daily press should be absolutely tabooed. Reports of the technical proceedings of medical societies should not appear in their columns. Successful operations, curious cases, wonderful cures, as reported in our daily papers, but pamper to a morbid craving and serve no other purpose than to antagonize the best efforts of the profession, to benefit the

human race. Quackery thrives by reason of the false opinion gained by the laity from reading just such trash. Restrict our medical opinions save when pertaining to public health and hygiene to medical mediums and let the other and disreputable methods of advertising mark as a quack the one who indulges in or allows it.

ARE WE PUNISHING THE RIGHT MAN?

BY DR. J. B. HODGKIN, WASHINGTON, D. C.

No one who observes the trend of events but must feel that all who are engaged in the supervision of dental education, whether in a professional way or as members of examining boards, are really in earnest as to the matter of doing what they profess, and wish most earnestly to forward in every way the interests of dental education. If there are doubts as to methods, they seem doubts as to methods only, and not as to the need for advanced teaching, or of the desire of all engaged in the work to conspire to the fulfilment of the best aims and needs of the profession. That the ways and means now employed are not the very best probably all, even those who have worked hardest in this direction, are willing to admit; and we, though not seeing the clearest and best light now, are focussing all glasses on the horizon, in the hope that the light, still too dim for our purpose, may grow more luminous, and that soon.

But while this is true, and while we who are teaching and those whose function it is to legally supervise afterwards the work done in the colleges before it is passed as "good" see partly the effect of the work and the supervision, still I take it that a little earnest quarrelling over the methods used by both parties may not be useless; for out of wrangling comes clear thought, and if argument does nothing to convince the arguers, it does convince the bystander.

I have headed this with the words, "Are we punishing the right man?" a question involving the thought that some one is being wronged. I wish to state, as briefly as I may, what the wrong done is, to whom and by whom it is done, and the remedy, if such can be found and applied.

Our college session is now three years, each in separate years, and each session of seven months. This, subtracting the holidays, may make a full six months, or, altogether, about eighteen months in college. Of these months, the six of the first year are devoted to elementary studies, which I need not enumerate; the others, supposedly, to the real study of the science of dentistry as applied to work. The theory of the schools, and the arrangement of the classes is in accord with the idea that it will take at least three years for the average man to acquire such a knowledge of dentistry, with the means furnished by the colleges, as will fit him for practice. Perhaps this may be a fact, as almost all the schools of the country have accepted this schedule as necessary, and are run on the idea that unless the average man has at least three years of pretty close application he will not be fitted for practice.

This idea has been so persistently drilled into the dental (public) mind as to be accepted as a truism, and being accepted as vox populi, becomes vox Dei, and settled upon as an ultimate truth.

But I, with that freedom which I have the right to claim, ask, Is this true? and if so, is there no fault to be found in the arrangement? As to whether the first part be true I will not stop to discuss; the fact may be that it *does* take three years on the average to make a good dentist; but is it a fact that because it takes this three years *for some*, should all, whether capable of taking in the course in one year, two years, or three, be compelled to work together all the three years? Now, as a matter of fact, all who have had the most superficial notice in the matter of education know that there are different degrees of apprehension with students. It would be foolish to do more than state this, and foolish in you to deny it. You know men, I know men, who learned more of dentistry, more of anatomy, more of mathematics, more of music, in one week than another would learn in one month. So obvious is this that I will no more than mention it. What we do in our schools is to make this ready wit, this alert brain, this comprehensive and apprehensive mind, *drudge with the dull fellow who can only, by the most patient toil*, make his average in the three full years of study. The answer I get when I assert that this is unjust, is that the injustice of shortening the term, or of allowing the student the choice of trying for graduation sooner, is less than the occasional injury inflicted on the stronger pupil. The involved idea is that had the colleges any power in the matter of graduation in less than the three years' limit, its abuse, even if seldom at-

tempted, would be a worse calamity than the abuse of keeping the proficient man alongside the dull one for the full term.

Here is the gist of the whole matter; here the sin of which I complain. I contend that no college, no board of examiners, no board of regents, or other power, has a moral right to harness a bright man to a dull one and say to the great mind: "True, you are strongly capable, and the fellow with you feebly capable; you could easily master this curriculum in twelve months or less, and he can at best do it only within three years, but public opinion says (and we must bow to it), that if any other course be allowed, the incompetent man may slip through and injury be done."

But, gentlemen, I wish to say that none of us has a right to punish the wrong man. None of us has the right to inflict an injustice on one man that the chance of injustice to another, or to others, may be less. The law has a maxim that it is better that ninety-nine guilty men escape rather than one innocent man be found guilty. And to this maxim the common sense of mankind assents. How, then, can we, who are educating professional men, say to them, "We know you are not all equally bright, and that some of you could acquire all that any board of examiners, or any college examiners, could ask inside of one year, but we are afraid that if we allow one of you to do this, that some other one may possibly slip by and escape with a diploma to the injury of the profession. The question with us is that we must not let any man graduate until entirely fit; we accept the dictum of the boards that this takes three years for the average man, and so you must take your place with the slow and keep pace with the dull, else we may not be able to discriminate. In a word, gentlemen, we are not trusted by the boards in this matter, and so you must take the consequences. The truth is your brightness is just now your misfortune."

This is just what happens right here in our Washington (D. C.) High Schools, and in the graded schools as well. Everybody who knows anything about the system in our schools knows that there are children who could and do master the curriculum of the classes in half the time that others take. It is simply a question of capacity. I have a boy in the high school here who will do his algebraic equations and talk over his shoulder with the other children at the same time, while another has to concentrate all his energies on such work, and seeks the quietest solitude that he may painfully work out what the other does as mere play. To tie down this

strong-brained boy and compel him to keep pace with the slow plodder is a manifest injustice, yet our schools have no other than this machine way of instruction, and possibly no other way is feasible in our day.

But if I "show you a more excellent way," what then? There is such a way, and a school—possibly the most successful school—in this country for years, and successful still, has such a method. I refer to the University of Virginia, than which there has been no more thorough and efficient teacher of young men for three-fourths of a century. When I tell you that not more than ten years ago nine men graduating from this university took the examination for surgeon in the United States navy, and that of the nine, eight passed this most trying ordeal, and that the same year nine graduates from Harvard took the same examination, and eight out of the nine Harvard men failed, you will appreciate something of the high standard of this University, founded by Thomas Jefferson, and from which have graduated many of the brightest lights of our land.

The course at this school is, as one of its graduates expressed it to me, "tough." It is nine months of solid work, nine hours a day, in school, every day except Sunday, and one day's holiday at Christmas. The candidate for entrance has, of course, to pass a preliminary examination, and if this is satisfactory he is admitted to the medical school (for it is of the medical I am thinking,—there is no dental department), and for four and a half months follows the prescribed course of study. At this time he is allowed to try for the middle examination, and if successful in this he is eligible for graduation, providing he can pass the "final." At the final he is tested, and some *do* graduate in one session. I have known, I think, three to do this; probably more have done so, but of this I am not certain. I knew of one class of seventy-three medical students, of whom four graduated!

Now, as I have said, these men try for such examination as the navy or the army, and I am told they are quite as successful in the army examinations as in the navy. Yet this is a college which allows students to graduate in one session,—*if they can*. If one contrasts this with the other method of harnessing down men who could graduate in such a school in one session to a course of three, it will be seen that the crime I have spoken of in the title to this essay is a real one, and an unjustifiable punishment is inflicted on the innocent but competent pupil. If the University of Virginia

can do this and keep clean hands, any school can and should. If men can show their ability, after a single year in such a school as this, to pass such examinations as those required by the army and navy, it is a shame to keep them longer.

The capable student says—he and his friends—the long sessions are made for the *benefit of the college*; the three terms made for the *gain of the teachers*. Here extremes meet, for in forcing on the colleges a three years' course the Examiners have, unwittingly, possibly, put money in the pockets of the professors.

For every evil there should be a remedy, even for the social evil. The one I suggest may be far off and apparently out of grasp, but it is, at all events, simple and radical.

We spend millions annually in education. How much is given away in this way who can tell? What I suggest is as simple as can be. It is to take from the colleges all power over the final examination. Let this be the function of a board provided for by act of Congress. I will presently explain this more fully.

Now, let this board do all the work of the "finals," take all the responsibility, grant the diplomas, in the name of and for the college, and let this examination and its results be the thing by which the student is to pass muster outside. The function of the State Boards to be simply that of endorsing the action of the examiners in chief, and they (the State Boards) electing from among their number the examining board; these in turn to be confirmed by Congress, just as other judiciary appointments are.

It will be objected that the State Boards will not agree to this, and yet, if they will consider, they will really have more power than ever, since they will virtually control the schools. And if objection is made that the States may not agree to such arrangement of the matter and of the practical annulment of the State laws, it is sufficient answer that each State law is about what the best dentists of the State ask for; and can a better plan be suggested for the unification of all the State laws than for a board, nominated by the National Examiners, to formulate as perfect a system of examinations as that used by the army or navy for its candidates.

Of course, we know that there resides no power in Congress to legislate after this fashion for the States, but it is not at all impossible for men who are really *in earnest* in the matter of education to agree to lay aside all personal views and *agree upon something*. I am of the opinion that if the National Board of Dental Examiners were to meet in good faith a board from the colleges,

and agree to a set of questions to which all who apply for graduation must answer, that the two could hardly fail to come to the best sort of agreement in the matter. Now, if the nominations made for the Board of Examiners for the country were made free from political or other bias, and Congress were asked to ratify this selection, and then the boards for the States cordially agree to accept these as final, how great would be the improvement on what we have now!

The State laws, of course, would have to be modified, but this, I take it, should not be impossible if the Examiners were really in earnest. The list of questions would have to be made up from year to year by the Board, and copies furnished the colleges as a basis of work; or, if it were better, the teachers might furnish lists of their own questions to the Board, with the monthly examinations (written) of the classes.

It would only be necessary for Congress, which appropriates millions a year on so-called education among other classes than dentists, to make such appropriation as may be needed; or the States might make a special tax for this purpose, it being possible that this last might be the better plan.

What is needed, of course, is practical agreement among those educating and those controlling education in our midst. Some plan such as I suggest need not necessarily hamper the work or the individuality of any college or any teacher. It would leave all free to teach as each thought best. But it would leave the results to be tested by outside parties, parties uninfluenced by interest or by friendship. It would make the matter of graduation one of merit solely, and would place the whole matter where it rightly belongs, —out of the control of the schools; and best of all, possibly, it would rid the graduate of that subsidiary and, to him, degrading State Board Examination.

The difficulty which appears at first sight of the colleges closing about the same time of year, and of piling on the Examiners an amount of work impossible of performance, may be met by providing that the Board be allowed six months or less for the "final," and that they travel from State to State for this purpose, the college students meeting them at convenient points, just as at present they meet the State Boards. Report of the Examiners to be made direct to the Deans of the colleges, or otherwise, as may be thought best. If this be thought a hardship on the student and prospective graduate, let the State Board allow him a provisional license to

practise in any State until the report of the National Examiners is made.

Of course, this implies the constitution of a board whose duties may be so large as to take most of their time. But it need not; and, indeed, it seems tolerably certain that such a board might well do this work in, say, the three summer months, and not injure the plan at all by this. The student need not suffer if he is licensed meantime, and the profession could not suffer, inasmuch as the harm the student might do would be self-limiting.

In conclusion, do not jeer at this as the scheme of a dreamer, but think of it as the suggestion of one who has seen for years the unhappy results of the friction between college faculties and State boards, and who has seen and felt the "personal equation" which must show itself at the end of the session, when the "boys" who sat on the benches during lectures are now appealing to the sympathies of the teacher.

Let the "one session idea" dwell in your minds a little. Let you but think of the injustice to your own son of keeping him, a bright, intelligent lad, harnessed to a dullard for three long years, when you know that he is as receptive as a sensitized photographic plate, and think how the iron-clad three-years' rule makes this necessary in multitudes of cases in every year in college classes, and how you are punishing the bright man for being bright, and how you are encouraging dulness in being dull, so it be persistent, and I think you may agree at least to think over this subject with me.

To summarize:

1. A single session, of nine months.
2. An intermediate examination for admission to the graduating class.
3. Opportunity for all to take the one course, and graduate.
4. Teachers to be teachers only, and to have no part in decision of award of diplomas.
5. A board of examiners to be selected by the National Association of Examiners, sitting in conjunction with college board, or alone, these to be confirmed by act of Congress, and paid by Congress, as public educators.
6. The decisions of this board to exempt those who come before it from any "retrial of the case" before the State Boards.
7. A provisional license for the applicant for a diploma until he has passed the "final."

Some provision might be made for the retrial of cases, and of course rejected applicants could return to college for another term.

Abstracts and Translations.

THE RELATIONS OF DENTAL DISEASES TO GENERAL DISEASES.

BY WILLIAM HUNTER, M.D., F.R.C.P.

IT is now some ten years since, in the course of a somewhat detailed study of the pathology of the severest forms of anæmia, my attention was drawn to the mouth as a possible source of the infection which, according to my observations, undoubtedly underlies these forms of anæmia. . . .

To-night I propose, therefore, to confine my remarks within certain defined limits, to pass over briefly those diseases whose relation to dental disease is obvious and well recognized, and to direct attention to those—in my opinion, no less important—where this relation is not so clear, yet probably hardly less close. . . .

BACTERIOLOGY OF DENTAL CARIES.

On this point—the infective nature of dental caries—I need not dwell. The evidence so abundantly furnished by the laborious bacteriological observations of Miller (1884–1894), on no fewer than two hundred and fifty cases of diseased teeth; Galippe and Vignal (1889), Jung (1893), and most recently of all by Professor Arkövy, of Budapesth (1898), is to my mind overwhelmingly conclusive on this point.

The observations of the last mentioned seem to me to be of such particular importance that I venture to summarize them very briefly. They extend from 1878.

He has studied in detail the organisms found in the following conditions:

1. Chronic alveolar abscess, with and without parulis.
2. Gangrene of pulp, both acute and chronic.
3. Old stoppings removed after varying periods of time.
4. Chronic alveolar abscess with circumscribed alveolar necrosis, after previous root-stopping.

His method was as follows:

After complete evacuation of the pus from the abscess-cavity, or removal of the gangrenous pulp from the pulp-cavity, and out

of the root as far as the apical foramen, all parts were thoroughly disinfected, first, with one per cent. corrosive sublimate, and then with pure carbolic acid, and then thoroughly packed with a jelly-like mixture of camphor, pure carbolic, and oil of eucalyptus, and the whole closed in with a covering of asbestos and gutta-percha. In this condition the tooth was left some three to six months before the definitive filling was proceeded with.

Many cases under this treatment healed entirely, and he regarded them as sterile. A small minority still presented some degree of parulis or chronic periostitis remaining; and the cause of this he endeavored to ascertain by careful cultivation, the pathogenic properties of the various cultures being determined by experiments on animals.

The number of cases examined in this way was forty-three; and the chief result of his observations is to show that the organism most constantly present in diseased pulps and in dental caries is a bacillus to which he gives the name of *bacillus gangræna pulpæ*. Its relative frequency, as compared with other organisms, is 95.3 per cent. of all cases.

Next most frequent is the staphylococcus pyogenes aureus in 34.8 per cent. of cases; then the streptococcus pyogenes in 23.2 per cent. of cases; then staphylococcus pyogenes albus, 18.6 per cent.; staphylococcus pyogenes citreus, 4.6 per cent.; bacillus pyocyaneus, 9.3 per cent., and some nine other organisms, mostly harmless, in varying frequency.

Morphologically the characteristic feature of *bacillus gangræna pulpæ* is that it is pleomorphic, forming bacilli when grown on gelatin, cocci when grown on agar-agar.

As regards pathogenic action, pure cultures of this organism were found to possess the power, single-handed, of producing gangrene of the pulp; never suppuration, unless other organisms were present.

A further important observation made was, this organism could effect a softening of the tooth, even in an alkaline medium, a fact which, if confirmed, would dispose of the view widely prevalent regarding dental caries,—viz., that the first decalcification is the result of the action of an acid.

The organisms found in carious dentine after sterilization were: *bacillus gangræna pulpæ* in every one; staphylococcus pyogenes aureus; streptococcus pyogenes; *bacillus gangræna pulpæ* the only constant.

The pyogenic organisms were always absent in teeth properly dealt with antiseptically.

RELATION TO LOCAL INFECTIVE DISEASES.

This group includes not only the various complications of diseased teeth met with in the bones of the jaw, the gums, neighboring maxillary sinuses,—*e.g.*, alveolar abscess, suppuration in the sockets (pyorrhœa alveolaris), periostitis, osteitis, osteomyelitis, necrosis of bone, suppuration in maxillary sinuses,—but also inflammations and suppuration in neighboring parts by direct extension, such as inflammation, and at times suppuration of lymph-glands of neck, cellulitis of neck, post-pharyngeal abscess, thrombosis of veins, meningitis.

This group of cases may, perhaps with one exception, be excluded from our field of survey to-night. Their relation to dental disease is obvious, and does not require any special elucidation.

Cases of this kind are not uncommon. A number are on record (one such came but recently under my notice) where, after extraction of a tooth with a foul instrument, a condition of gangrenous stomatitis, osteomyelitis, and necrosis has been set up, and death has ensued from pyæmia.

DISEASED GLANDS IN NECK.

One of the conditions above referred to deserves a more detailed notice,—*viz.*, the relation of dental caries to chronic glandular enlargements in the neck. To what extent may such enlargements be due in the first instance to conditions of decay in the teeth,—to irritation set up by inflammatory conditions around the teeth in children; the chronically enlarged glands subsequently forming favorable seats of infection for tubercle bacilli, with all the troubles attendant on tuberculous glands of neck.

Odenthal¹ examined 987 children and found decayed teeth in 429. In 558 no decay.

Of the 558 without decayed teeth: glandular swellings in 275 = forty-nine per cent. Of the 429 with decayed teeth: glandular swellings in 424 = ninety-nine per cent.

He was able to determine a constant relation betwixt the extent of the glandular swellings and the extent of the decay.

¹ Odenthal, 1887, Caries of Teeth as Centres of Infection and Cause of Chronic Glandular Swellings of the Neck.

Wherever the pulp was gangrenous or highly inflamed the glandular swelling was invariably more pronounced and extended.

The presence of a number of decayed teeth was always accompanied by very marked glandular swellings.

The most recent contribution to the subject is that of Hugo Starek, "Tuberculous Cervical Glands in Relation to Carious Teeth" (*Münchener medicinische Wochenschrift*, vol. xliii., 1896).

He examined one hundred and thirteen children with glandular swellings of neck. In forty-one per cent. he found carious teeth, and in almost all of these the situation of the glands corresponded to the affected teeth.

In three children with tuberculous glands of neck he also found carious teeth; but he could not discover any tubercle bacilli in these.

In a girl, aged fourteen, otherwise healthy, he found a molar tooth containing tuberculous granulation tissue, and tuberculous glands on this side, and this alone.

This case suggests the possibility of a causal connection betwixt carious teeth and tuberculous glandular enlargements, but at the same time suggests that a local tuberculous lesion of the tooth is necessary, and this is very rare.

So far as the mouth is concerned, by far the most important seat of infection for tubercle is the tonsil.

Not only are giant-cells to be found in the tonsils in a considerable proportion of cases,—seven per cent. according to Cornil (*La Semaine médicale*, 1895, p. 223, seventy observations); but experiments have shown that tonsillar tissue, when injected into animals, is capable of giving rise to tuberculosis in a considerable percentage of cases,—according to Dieulafoy, thirteen per cent. (*La Semaine médicale*, 1895, p. 199, sixty-one experiments on guinea-pigs).

Not only for tubercle bacilli, but even more for pyogenic organisms, does the tonsil play an important part as a seat of entrance.

According to Buscke ("The Tonsils as Portals of Entry for Pyogenic Organisms," *Deutsche Zeitschrift für Chirurgie*, 1894), the tonsils play a greater rôle in admitting pus organisms than even the skin or the mucous membranes.

He found staphylococci and streptococci in hypertrophied tonsils which were not seats of acute inflammatory change.

He gives the history of four obscure cases of suppuration, in which the tonsils were the probable seat of infection, one of them

a case of uncomplicated simple fracture, which pursued a normal course for three weeks, by which time a large amount of callus was thrown out.

On the twenty-sixth day the patient fell ill with a sore throat, due to streptococci. Three days later similar streptococci could be found in the blood, and on the following day the patient was seized with rigors and rapidly developed a suppurative osteomyelitis and periostitis at the seat of fracture.

(To be continued.)

Reports of Society Meetings.

AMERICAN ACADEMY OF DENTAL SCIENCE.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Wednesday evening, February 1, 1899, at six o'clock.

A paper was read by Frederick T. Rogers, M.D., of Providence, R. I. Subject: "The Ethical Advertiser."

(For Dr. Rogers's paper, see page 504.)

Dr. Rogers.—I take it, gentlemen, no apology is needed for presenting to you to-night this paper, which was originally written for a medical society. It was written to be read before the American Academy of Medicine at Denver, last June, but as I look at the field which lies before all medical men the abuse to which I desire to call your attention is much the same in your profession as in mine. The man who advertises in the paper that he "cures fits" is in the same category as the man who plasters the front of his office with the sign "Painless Extracting." The man who rushes into print with a peculiar case is doing something which is obnoxious to the better element of the profession to which he belongs, whether it be medicine, dentistry, or any of the learned professions.

DISCUSSION.

Dr. Bradley.—It was with some hesitation that I consented to open this discussion when the chairman of the Executive Committee invited me to do so, feeling that my experience was of a

limited nature, and I was certainly not an authority upon the ethics of the profession; in fact, I have given but very little attention to this subject and have thought very little about it, except when some noticeable violation of it has come to my notice. However, I may act as a wedge, perhaps, this evening, and others who will wield the sledge will either drive that wedge in, or if it does not suit them, substitute another which will accomplish the purpose of provoking a general discussion.

I think, Mr. President, there is room for considerable satisfaction to the members of the Academy in having a special paper read before us by a member of the medical profession on a subject which so vitally interests all professions. Not many years ago, I presume, it would have been unusual for medical men to read their papers before a body of dentists, even before an organization of such recognized standing as the American Academy of Dental Science, and the fact that this has been done this evening by a member of the medical profession, and a member of that important body, the American Academy of Medicine, indicates that we have a standing with our medical brothers, that we are recognized as a part of those who are engaged in the healing art, so I feel that we may be pardoned if we congratulate ourselves that our position has come to be openly recognized.

The question of the code of ethics is something that has always been a vexed one as regards its interpretation. Our own Code of Ethics does not speak at very great length about advertising. I believe the only place where anything is said is in Section 4, Article II., of the Code, which reads as follows:

“It is unprofessional to resort to public advertisements, cards, hand-bills, posters, or signs, calling attention to peculiar styles of work, lowness of prices, or special modes of operating; or to claim superiority over neighboring practitioners; to publish reports of cases or certificates in public prints; to go from house to house to solicit or perform operations; to circulate or recommend nostrums, or to perform any similar acts.”

I think this article, though not very long, covers the ground quite thoroughly. It speaks in a guarded manner about specialism in the profession and of advertising in the public press or by using posters. It also speaks in a guarded manner of the ethical advertising by the publishing of reports of unusual cases in the public prints, which the essayist has brought out so forcibly.

It seems to me that the dental profession has a little different

stand-point from the medical profession on this question. I doubt if very many of our members really engage in specialism as is done in the medical fraternity. We may have one or two instances, perhaps, but I am not aware of very many who give their whole attention to one phase of the work, so that we shall have to look at our advertising a little differently from what the essayist has done. I feel with him that the profession of dentistry is somewhat crowded by those who have entered merely from the mercantile point of view. There are too few educated men, or those who are gentlemen by culture or instinct, and they look at it too much from the stand-point of keen competition; they try to feel that it is legitimate to take patients from any source that they can; but I am pleased to think that a very large proportion—and I feel sure that the members of the American Academy of Dental Science, as well as of many other dental societies—may be classed as those who have entered the profession feeling that the claims of their fellow-practitioners have always to be carefully considered.

In the matter of advertising in the daily press, I was talking with the proprietor of a daily paper, and he said that, while the medical men and dentists never advertised in the papers, he had observed they were always very glad to have a notice in the paper of what they did, and that was really more valuable to them than half a column of advertising. I have faith to believe, Mr. President, if I can judge from my acquaintance, that a very great many of my profession and of the medical profession really desire not to see their name in the public press; they take particular pains not to have it appear, even in social and political affairs as well as in professional matters. I must claim that the reporter, the ubiquitous reporter, the ever-present reporter, is responsible for the advertising which the professional man many times wishes that he did not get. I know of a case of a friend of mine who went on a little vacation to the White Mountains, and on his return brought a few plants with him, and a notice appeared in the paper something like this: "Dr. ——— has been spending some time in the White Mountains, and has brought home some plants and has established quite a garden." Now, I know that it was very distasteful to the gentleman to have that appear in the paper.

Another way, I think, in which these notices come before the public is by persons soliciting testimonials from professional people regarding something they use which may have more or less merit. Within a year I have had, and I presume most of you have had, the

same experience, of some one calling on you and asking you to become stockholders in a concern manufacturing some drugs, and promising great returns from whatever capital you invested, and to prove that everything was all right he showed a long list of people who had agreed to take stock in this concern. In other cases you receive a letter from some firm manufacturing a tooth-powder or tooth-wash, in which they state that if you will prepare an article on the proper use of the brush and the hygiene of the mouth, they will have a pamphlet printed with your name on it, if you wish, and will send you any number of copies that you want, or, if you will mail them a list, they will send them to any addresses you suggest, thus serving the double purpose of advertising both for the dentist and the manufacturer. Letters of this kind—and I have had a number of them—I have paid very little attention to, and throw them at once into the waste-basket. But it seems to me that the profession is not entirely to blame if they fall into these little traps. Very frequently it is those who are catering to the profession from a mercenary stand-point who will lay things before the members of the profession in such a manner that they do not appear to violate the code of ethics. I have come to think that there is a great deal in the rule laid down by Robert Burns, that before doing anything about which there is a doubt, one should think how it would look in the other fellow to do it. If we think it would be unbecoming for A or B to do thus and so, to bring his name before the public in certain ways, or to lend his assistance to unprofessional schemes, we better decline to be associated with those things ourselves.

In regard to the question of professors and instructors in dental schools occupying positions similar to the surgeons and physicians to hospitals, and whether it is correct for titles of that kind to appear in connection with the name of such a person, I know that the schools issue prospectuses and announcements, in which attention is called to the prominence, the reputation, and the skill of the instructors. These announcements appear in the professional journals, which are circulated largely among the profession, and, perhaps, are seen somewhat by the laity, and while the essayist claims that such announcement of the degrees that a professor may hold or mention of the work that he is in charge of at the school is in a certain sense ethical advertising, yet, have we not a duty to the schools? Let us look at it from that point of view. The public desires to know who are the teachers and the professors having in charge the education of those who wish to become members of the

profession. It is not sufficient to state in the announcement, "We have a good corps of professors and instructors;" the public must know who they are, and while it may advertise the instructors, the professors, and the clinical demonstrators, and bring them before the public as especially skilled in certain lines, still it is for the benefit of the school, it is for the benefit of the educational plant, if we may say so, of the work we are engaged in, that the students may know in whose hands they shall intrust their education. So, it seems to me, there are two sides to this question, and that while the mention of the hospital assignments against the names of the faculty in the announcements of dental colleges does advertise those officers to some extent, there is something to be said in favor of building up the school by the reputation of the faculty, and insuring its students the best dental education.

In regard to formulating a law to regulate this ethical advertising. I question if any one would like to undertake it, as it it would certainly be very difficult to do. It seems to me, after thinking the matter over, that an unwritten law is the best. Sometimes there is more strength in an unwritten law of this character than there would be in one that is formulated; but let us have this feeling among members of the profession: that we are to be gentlemen; that we are to consider the other man. Some one has said that one of the grandest works that any one can find to do is to be engaged in discovering the other man, and I think if we turn our attention to discovering what we can do in this line there will be no need of formulating laws with regard to "ethical advertising."

President Cooke.—I am sure this is a question in which we are all interested and about which a great deal may be said. There is rather a good joke on myself in this connection which I at once appreciated. When I received my sheep-skin from the school, I thought it would be the proper thing to have it properly placed, so I had it framed and hung it up on the wall, and thought no more about it. A few years ago I had a small boy in my chair who was fully up to the average in inquisitiveness, and, pointing to the diploma, he asked, "What's that for,—to advertise?" I said, "Yes." Nothing more was said, for I thought the boy's intuition had got the thing nearly right, and it was hardly necessary to say anything more, as it did appear to be one form of advertising.

One evening I had a little time to spare and was walking down Washington Street, and I came in front of one of those glass cases in which there were some fine pieces of crown- and bridge-work,

and I stopped for a moment to look at them, and as I did so I heard a voice at my elbow, "Examination free, sir, walk right up." I turned and saw there a colored gentleman, in a uniform, with large brass buttons, looking very gorgeous, and the inducements to have your dental work done there seemed to be very attractive, but I did not walk up. Now that is the other form of advertising.

I am sure we are all interested in this subject, and the one little article which to my mind covers this point in our By-Laws is Section 1 of Article II.

"In his relation with another dental practitioner and his patients, the dentist should be governed by strict rules of honor and courtesy. His conduct should be such as, if universally imitated, would insure the mutual confidence of all dental practitioners."

That seems to me to express the whole thing in a nut-shell. If a man would say to himself, This action of mine, suppose everybody else did it, what sort of a profession, what sort of a society would we have? Suppose Dr. So-and-So did the same thing to my patient that I propose doing to his, how would I like it? By asking that question of ourselves we could very easily determine whether the act was professional or not. If we act as we should like to be treated under similar circumstances, we shall not have much trouble with the subject of ethical or non-ethical advertising.

Dr. Briggs.—I thought while the essayist was reading we all felt that we knew some cases in ourselves or in others that we thought steered pretty close to some form of advertising that was open to criticism. It is a very vexed question,—what we shall let the other fellow do in the way of advertising. The legitimate notice that the country practitioner puts in the local paper is the one thing that is frowned upon most, as the essayist has brought to our notice. At the same time, we can understand how that might be proper and decorous, while the ways which the city practitioner employs to bring himself into prominence, although within ethical bounds, may be most flagrant examples of advertising. I do not know how we are to treat this subject. It is difficult to distinguish between that which is done directly and that which comes about indirectly without the knowledge or consent of the person who is being advertised. The public prints are taken out of the hands of the practitioner, and in one sense you might say that some of the operations performed become things of public interest to the extent that they are discussed and commented upon by the laity and the

lay press. Take, for instance, a case which recently appeared, which on the first blush seemed to be a most flagrant case of ethical advertising; the advertisement, if you might call it that, of the operation of the removal of a woman's stomach. Now, that is an extraordinary operation; an operation which is undoubtedly of a great deal of interest to the laity as well as the members of the surgical and medical profession, and the surgeon who was mentioned there probably needs advertising as little as any surgeon in this city, and yet those of us who read it regarded it as something of an advertisement, and we had the feeling that if we were to furnish the details of our peculiar cases to the public press that it would be so regarded; but, on the other hand, we rarely have things come into our practice that are of equal public interest.

Then there are men who do advertise themselves quite as effectually in their own offices without going outside into the public prints. You cannot reach these people by formulating laws, and the only remedy that suggests itself to me for getting at this matter for treatment is the one mentioned by Dr. Bradley,—that of educating the young men in the schools up to a high standard of moral decency and of genteel deportment, as it were, and to depend upon that to bring out the right sort of conduct towards his fellow-men.

Dr. Andrews.—I think Dr. Briggs hit the nail squarely on the head when he spoke of educating our students in ethics at the time they are being taught in our schools. I have had occasion to state to people who come to me soliciting advertising cards for charitable programmes, that it is something I never do; when they are persistent, I tell them that if they will get Dr. So-and-So's card, I will consider the matter. They say, "Oh, he is a physician, and physicians do not advertise. They do not think it professional." I tell them that I see no reason why the same rules should not govern the dentist, and that ends the matter. There are various ways in which a name may be brought to the attention of the public, and I suppose it is all right, perhaps, but, as Dr. Briggs says, if we educate students in the schools on the subject of their conduct towards other members of the profession, we should probably have less to discuss on this subject.

Dr. Wilson.—I believe thoroughly in the idea that our young men should be educated as gentlemen, but experience has shown us in the past that there is a great diversity of opinion even among gentlemen about various matters pertaining to our profession. Some years ago, some of our members committed certain indiscre-

tions, which, in the opinion of the majority, were considered unprofessional. This was during a time when we had no code of ethics, and the result was a series of discussions and wearisome talks, which need never have taken place if we had been properly armed and equipped with a code of ethics. This being the case, it seemed to me essentially necessary that we should have a code of ethics, so that all present members, and those to come, might know just what the Academy expected of them. Did I understand Dr. Bradley to say the section he read was not quite complete?

Dr. Bradley.—I said that that was all that it contained in reference to advertising, ethical or otherwise.

Dr. Wilson.—I want to say that that section is an exact copy of the Code of the Massachusetts Medical Society. The only difference being in the substitution of the word dentist wherever necessary. The article which Dr. Cooke read was also taken from the Massachusetts Medical Society. It seemed to me better to take the best there was from the various prominent medical and dental societies in the country,—codes which had stood the test of time, and seemed to be in every way satisfactory, rather than originate any new ideas. The result was the adoption of the present Code of Ethics.

Dr. Smith.—Dr. Briggs refers to a case which he said looked like a flagrant case of advertising. True, it does, but no one who knows that surgeon believes for a moment that he had anything to do with it. The case came to him in the course of practice, and he believed that was the best method of dealing with it: the reporter got hold of it, wrote about it, and in that way the operation was brought before the public, and the feeling of opposition to publicity by the operator was not considered. Now, if a reporter happens to get hold of a few facts about this meeting we may read in the paper to-morrow morning that Dr. Rogers, an eminent specialist, of Providence, gave a very instructive and entertaining discourse before the American Academy of Dental Science last evening. It may be that he would prefer not to be so spoken of, but what could he do?

There has always been considerable discussion regarding the right of the learned professions to advertise. When we speak of learned professions, we are generally understood to mean divinity, law, and medicine. Now, if it is unprofessional for members of the medical profession to advertise, certainly it is unprofessional for the members of the professions of divinity or of law to advertise,

but I know of no class of men whose names appear in the newspapers oftener than do those of the professions of divinity and law. What is the result? The public knows more about the members of those professions and respect them accordingly. They know more about medicine to the extent that it is advertised in a legitimate way. The newspaper is the medium through which the public learns what is being done by different people all over the world, and they have a right to print anything which is legal that they think will interest their readers. Referring again to the case which was cited this evening, the account of the removal of a woman's stomach. As I have said, the surgeon did not need the advertising which he received through the publication of that article, but was not an operation of such a character of great interest to the public? In all probability nearly every person who read that item of news was surprised to find that such an operation was possible and the patient live, and naturally they would have a very high estimation of the man who was skilful enough to accomplish it. Not only that, but had not the public a more exalted opinion of the whole medical profession, and in that way every member of it came in for a share of the benefit of that advertisement?

I was much impressed one evening by a remark of Rev. Dr. McKenzie, in speaking about the dental profession, when he said that we might be called the "silent profession;" that the public really knew little about us, about what we have done, or what it was possible for us to do. And so, while our praises are in the mouths of our patients, many times they get no further than that; and many of them, I think, are terribly silent, and so we suffer in that sense from a lack of advertising which would reasonably seem to belong to us.

In regard to these show cases, etc., my position has brought to me different phases of this question and its results. To a young man who has prepared himself for a profession and is fortunate enough to drop into an established office with a man who has a large practice, he never need resort to a card or the newspaper to advertise himself; but where there is one young man so situated, there are hundreds and thousands of young men who have to begin differently; many of them are poor and, perhaps, have borrowed money in order to obtain their education, and are struggling to pay back the loan. They have high ethical ideas of what is right, and those high ethical ideas lead them to start in a prominent and cultivated part of the city, but the hoped-for practice does not come,

and hunger and want soon drives those ethical feelings out of the best of men. I have had those men come to me and say, "Dr. Smith, I must give up my office; I am not paying expenses where I am, and I must go down to such and such a part of the city, and see if I cannot make a living there." I tell them that it is just as honorable to practise in that part of the city as any other, provided the practice is respectfully conducted. So they change their office and start again, using the same signs. But they find they do not get patients, and they think they must get a larger sign, or perhaps several of them, to attract the attention of the people, and it is a question in my mind whether a person in that situation does not have to do something of that kind to call the attention of the people to him. With the other man, it is not necessary to do anything of that kind; he has been introduced, and his praises have been sounded from patient to patient, and he is thus advertised,—of course, in a proper way, and soon has a lucrative practice.

Dr. Williams.—I remember several years ago when the subject of medical legislation was being discussed in the State committee, I was talking with John I. Baker, a veteran legislator, and in the course of the conversation he made this remark: "You cannot by legislation make men conscientious," which seems to harmonize with the ideas which Dr. Bradley and Dr. Andrews hold on the subject, and also to be in the same line with the remark of Dr. Henry J. Bigelow, when the subject was being discussed in the Massachusetts Medical Society, which was to the effect that you may make all the laws you please about ethics, but there are people who will get around them.

This matter of necessity is a difficult thing to deal with. It makes the man who is under obligation to support himself, and perhaps a family, conspicuous, from the fact that he makes the attempt to bring himself before the public on the same line as the "milking stool" man, or the show-case man that has been referred to. But if he had received a proper professional education he would feel it beneath his dignity to do such a thing; and if he found that he was not doing as well as he would like to in dentistry, he would try something else. I think there are some men who would rather starve than to deceive people by advertisements or to do imperfect work for the sake of pecuniary gain.

I cannot speak from experience in this matter of advertising in the papers, as the only instances in which I have ever done anything of the kind was in the case of removal of my office, which has

only happened two or three times, and at such times I have had a card inserted in the paper for a limited time; but I can understand how there might be an advantage to the practitioner, and to the public often, in having the name of the practitioner in such places that it could be readily referred to in the case of necessity. It was only a few days ago I was asked by a gentleman if I could refer him to a special practitioner. He wanted to find an oculist and he only knew of one or two whom they told him were quacks and he was therefore afraid to go to them. Of course that is an embarrassment to the public, not knowing where to go when they wish to have special and thorough work done. At the same time, it is rather difficult to say how that list should be made up and where it should appear, as for instance, supposing all the specialists should be classified under certain headings in the directory, how would one select from that list which was the best, and what guarantee would there be that it was not simply a list of people who wanted to be known as specialists in certain lines, and yet did not possess the necessary qualifications? So it is difficult to say just what should be done, and, no doubt, it always will be, until the members of the professions can be induced to live up to the rule of doing unto others as they would that others should do to them.

Dr. Taft.—The case which Dr. Baker cited gave me the thought that it might have been a good thing for the young man if he had gone West. He might have received a few ideas as to the best course to pursue when he arrived there.

I have been for a good while much interested in this question of ethical advertising. I have always felt that the young man who started out in life with a good character and honest purpose, and who tried to establish himself in his profession by doing faithful and conscientious work, would build up a good practice in time. He might have to do some waiting, but he would eventually succeed. I have had considerable experience in practice-building in different localities in the past thirteen years, and I know what it means to sit down and wait for patients to come to you.

As a practitioner in the West for two years, my observation has been that competition in business and professional life is of necessity so much keener there than it is here that the views of the Western dentist upon this question of ethical advertising are quite different from those held by the Eastern dentist, and I think it might be said with truth that the question of dental ethics, and what constitutes a violation of its code, is one that disturbs our

profession a thousand times more than it does the general public, East or West. I know, from experience, that people in the West, especially in the large cities, do not care a farthing in the selection of their dentist, for the ethical ideas that we try to inculcate and live up to here. They have no use for a man who hides his light under a bushel. If a man is content to sit down and not let the public know in a business-like way what his profession or calling is, they will let him severely alone. They expect him to put out a substantial sign or advertisement stating who and what he is. They want to know something about him. The "hustlers" in the professions, as in all other callings in the West, are those who get practice and business, and are the ones who get it the quickest. The progressive and intelligent dentist of the West I have always looked upon, since my acquaintance with him, as a good business man, in addition to his being a professional gentleman. He might be termed a professional business man, with certain qualifications as a dentist that are honorable as well as desirable.

It is always a pleasure to listen to Dr. Smith, for he almost invariably speaks from what I would call a common-sense, practical stand-point. I am glad to hear him speak as he has done to-night, because I have a great deal of sympathy for the young man just starting out in practice to earn an honorable living; who has had to work day and night, and who has had, perhaps, to make every sacrifice to get a professional education.

The men who have large and comfortable practices are generally the ones who frame the code of ethics, and who are also the quickest to take note of any seeming violation of it.

I have had patients say to me, "Doctor, why don't you advertise and increase your business in that way? You do not even have a sign out on your windows. There is, to be sure, a little sign at the door, which might be easily overlooked if a person were passing your office in their effort to find you. I should think you would move down town into the business district, and have a sign on your windows large enough to let people know where you are."

In discussing the question of dental ethics one day with a gentleman who looks upon the practice of dentistry from a purely business stand-point, the latter remarked, "Doctor, I would just as soon patronize a man who lets the public know his qualifications as a dentist, provided I was satisfied he could do good work, as I would the man who sat down in his office as you are doing and making no effort to let the public know who you are or what you

are capable of doing, except as they gradually find it out through some one else."

I mention this merely to emphasize my belief that the public care very little for our code of ethics, or for our deliberations over what constitutes an offence against it.

I have noticed that men in other professions do not appear to consider it a violation of their code of ethics because their names are continually appearing before the public. It is *necessary and right* for a man in any profession who wishes to build up a practice to introduce himself, wherever he locates, to as many people as possible. This he can always do in a perfectly honorable and legitimate way.

Let him adopt, as has been said, the golden rule as his code of ethics, and if he conducts his practice in accordance with its precepts, we can safely allow him considerable latitude in his interpretation of the code and of what constitutes legitimate and inoffensive advertising.

Dr. Fillebrown.—The discussion has again brought into prominence the same old fact that medical and professional associations have their codes of ethics and that the majority of the members are violating them every day, and they will go on violating them just so long as public opinion approves of it by their patronage. The serious question is, What can be done to help it? I do not believe much can be done, except so far as you carry out the principle that has been spoken of here to-night, of educating the profession and people to a higher standard of ethics. Laws govern just so far as they are the expression of public opinion. Any law that goes beyond that is of no practical effect at all. A set of English laws which secured to the people some of the most valuable property rights, became entirely extinct by legal discussions without parliamentary action, because public opinion was against them. So far as public opinion and the professional opinion advance and agree a higher professional code of ethics will prevail. Dr. Bradley, in his closing remarks, struck the keynote to the whole situation when he said that our actions should be governed by the instincts of judgment and gentlemanly conduct. Our old American Dental Association had quite an extensive code of ethics, embracing a number of articles. It was compiled by Dr. Watts years ago, and remained as adopted until the extinction of the association, a year ago. The Southern Dental Association had the same comprehensive code, and that too has passed out of existence. When the

National Dental Association was formed there was no code of ethics adopted at all. The constitution was as much as they could at the time agree upon. Last year I had the honor of being its president, and in my remarks at the last meeting I raised the question whether we should adopt a long code similar to that which I have referred to, or a simple one that every man was expected to conduct himself as a gentleman towards his patients and fellow-practitioners. After a great deal of discussion a committee was appointed to prepare a code of ethics, and it is quite possible next year something to that effect will be adopted as a code of ethics for the Association. That is the code that is recognized in the control of our army and navy and all our national offices. We may have these fulminations on the subject from time to time, and they do just so much towards elevating our ideas as to what the standard should be, but until you educate the people and students in regard to what should be expected from professional men, you will always have what we consider violations of the code of ethics.

Dr. Werner.—I would like to ask wherein the general rules, which we should have for our guidance, differ from those that should govern the rest of the world, as to sociology, as to the question of commerce, or from the stand-point of Christianity,—do unto others as you would that they should do to you. As to the details of the code of ethics, we must make distinction that dentistry, as it is practised to-day, is not what it was fifty years ago; it is not as medicine was or as medicine is to-day. Every art, every manufacture, every science that has in it that which is a benefit to mankind, has brought something to our assistance in dentistry. How much machinery does for us, how much assistants of all kinds do for us, much more than can be done for the general medical practitioner. When we consider the equipment and practical knowledge and experience necessary in a dental practice to-day, we older practitioners must wonder how the young man from the dental schools is going to get a living the first few years. The most consoling thought we can find for him is the fact that we know that not more than seven-tenths of the dentistry needed to-day is done, and in that respect we are much better off than they are in a great many other fields where machinery in one hour's time will do more than fifty men can do in one day. And yet that does not mean that we have not kept pace with the improvements in other arts, as you will see when you consider how a man started in dentistry forty or fifty years ago and how the young man has to start to-day. I have no

doubt the case which Dr. Baker spoke of could be duplicated many times to the knowledge of those who are present right here. Where would I start to-day if I were a stranger in Boston? We are talking here among a lot of men who have been fairly, if not more than ordinarily successful, and we do not appreciate what the young man starting out has to contend with.

Medicine is not an exact science. Surgery and our mechanical dentistry are much nearer exact sciences. We have many more specifics than there are in medicine, and few of our patients die on our hands because of inability to diagnose or cure the case. But we must hold fast to the ethical, elevated ideas of gentlemanly instincts, Christian principles, and character. We must not go to the extreme of thinking that we can advertise *ad random*, at the same time it would be ridiculous to think that we must never allow ourselves to come before the public in any way or shape; that would be the other extreme.

Dr. Williams.—I would like to ask the gentleman how many teeth he has seen die?

Dr. Werner.—The only tooth that dies is the tooth that is pulled out.

Dr. Briggs.—It seems to me that there is one fault in the discussion on this subject, and that is the use of the word "advertise." Now, when we speak of advertising, we include all sorts of efforts to bring the individual to the public notice. Well, I question whether that ought to be put down as a violation of any code of ethics. It seems to me the thing that is wrong, the thing that brings the harm, is the insinuation that any one man is something or will do something that other men cannot do, and whether that is done in the public print, or whether it is said to his friends or told to his patients; however, it is done, and by whatever name you may call it, advertising or any other name, that certainly is a violation of the code of ethics. A man may insert his card in some paper, calling attention to the location of his office and the time during which he may be found there, and while it is called advertising, he does not necessarily insinuate that there are not other men in the profession who are as good as he, and so long as he does not try to impress his patients or the public in any way that he has something special, or to convey the idea that he is peculiarly endowed above his fellows by Providence, or some other way, in some particular line of work, I do not see that it can be called a violation of the code of ethics.

Dr. Rogers.—Surely it does not behoove me to be argumentative when I am here as your guest, but this is a free country, where a man may speak his mind freely, and, as some of you have done so this evening, you will probably not object to my doing the same. Unfortunately, my “gift of gab” is limited, and the ideas which come to me when I am listening to others are like placing a scid-litz powder in an after-dinner coffee cup,—they make their escape very quickly.

There are one or two things to which I do take exception, and I shall begin with the first speaker, Dr. Bradley. I think he is in error in his argument as to the duty that the professor owes his school. To be sure, he does owe his school a duty, a responsibility, to give to it his best efforts just as a man does to any position to which he is called, but one of the main points of my argument was that if the professor of a dental school should claim for himself the right to advance his own interests by reason of his connection with that school, then he should not deny to the student the privilege of announcing to the public that he is a graduate of that school, and that he is prepared to do dentistry in all its branches, as his diploma will certify. If there is any benefit to be derived from connection with a certain school, it seems to me the student is the one who should receive it when he is starting out to build up his practice, and if, unfortunately, when he begins to travel this hard and thorny road, he is a married man, he owes quite as much to his family as the professor does to his. When we hear of a case of a graduate of a leading dental school being obliged to move from up-town apartments to a down-town tenement, it surely is a case which excites our compassion; but it should do more than that, it should lead us to inquire into the reason why a man holding the same diploma as ourselves was not able to make a success. If that man cannot get business by following the course which has been prescribed for him, who can blame him if he adopts the methods of those who are successful?

I was greatly surprised to learn this evening that there were only about seven-tenths as many dentists as there should be; but if there are many whose experience is like the one cited here this evening, I do not see much encouragement for the other three-tenths to come in.

A man cannot hope to graduate from college and set up at once in a profitable practice. It is out of the question. He must gain the confidence of the people before he can expect patronage, and

he is expected to do this without advertising himself; but if gentlemen who are in the positions of professors in schools or are connected with hospitals are allowed to call attention to these connections in the prospectus of the medical school or in the hospital reports or wherever the opportunity presents, they should not deny to the younger men some similar form of advertising.

The profession of dentistry has been spoken of to-night as the "silent profession." I was amused within a week to read in an account of the proceedings of a congress of dentists the advice given by one of the members, that dentists should cultivate a light and instructive form of conversation with which to interest the patient during dental operations.

I take exception to the statement of one of the speakers that the science of dentistry is not on the same plane with the medical profession. I do not understand what he could mean by that statement. He surely does not mean to place it on a higher plane than the medical profession, and at the same time I do not see why he should wish to place it below the medical profession and not amenable to the same laws; and if that is the case, dentists should be called by the title "dentist" and not "doctor." Surely there is a chance for brains in the work that comes before the dentists as well as in the work that comes before the medical man, and I do not see why they should not be governed by the same laws.

My whole plea is not to revolutionize the word "advertise," but to make the claim that what is "sauce for the goose is sauce for the gander," and that men who are in authority should not debar others from using the same methods for the attainment of success which they themselves employ. This distinction was brought vividly before my mind by the fact that two of my personal friends were refused membership in the New England Ophthalmological Society, because, living in New Hampshire, they had inserted in the papers a card stating their office hours, and that their practice was limited to diseases of the eye and ear. Within one week I received through the mail an address delivered by an officer of that Society. This address, which, as was stated on the envelope, was delivered by Professor ———, of Harvard University, was given a very wide circulation, and was, of course, an excellent advertisement for the gentleman. Now, that is a distinction which I claim is an injustice and is not right.

I believe heartily in what has been stated here, that the student should be educated in what is to be expected of him in the matter

of ethics when he enters upon his practice, but what school is there that gives one hour a year to the instruction of its pupils on this subject? There should be a chair of ethics in every medical school, but as yet, to the best of my belief, there is no medical school which gives special instruction on this point, and the school which fails to instruct its pupils in ethics is just as much at fault as the school which would fail to instruct its pupils in the diagnosis of a cerebral tumor or how to cure a boil, and when they do send them forth without this knowledge of ethics, they should not blame them if they fall by the wayside and do a little bit of ethical advertising.

The cases reported here to-night of waiting for practice can be paralleled in the medical profession. I know of men who did not get twenty-five dollars, five dollars, or even three dollars as the result of their first year's work. The hardest case I ever heard of occurred in Schenectady, N. Y. A young man, graduate of Bellevue, told me that the first year after he opened up his office he had just two people inside,—one man to take his gas register and the other man wanted him to hire a piano, and his receipts for the first year were absolutely *nil*.

One of the speakers said that in some cases, when a man got down to a certain round of the ladder he would begin to advertise. The fact that a man does not get practice does not make it right to adopt questionable methods of advertising any more than a man who is out of work is justified in stealing. The principle is the thing at stake. We should be gentlemen first of all, but unfortunately there are some who are not gentlemen, and I have referred particularly this evening to that class who debar others from using the methods which they adopt for their own success, and while we all feel that no law can be enacted which will certainly control the actions of the members of a profession, at the same time it does no harm to have a little free conversation on the subject, and I am sure I am pleased at the full discussion it has received this evening.

Dr. Smith.—I do not rise to continue the argument, for I presume that the closing remarks of the essayist are supposed to close all discussion on the subject, but I wish simply to say what I think the essayist will be pleased to know, that the Dental School of Harvard University has a course of lectures for its students, wherein is taught the ethics which it is expected they shall observe in the conduct of their practice.

Dr. Eames.—If proper care is exercised to see that a certain

standard of general education, and especially in moral ethics, is demanded of those candidates who seek to enter the colleges, then you will have a proper soil in which to implant ethical ideas.

I move that we offer a vote of thanks to our essayist for his very interesting and instructive paper.

HARRY E. CUTTER, D.D.S.,
Editor American Academy of Dental Science.

ACADEMY OF STOMATOLOGY.

A REGULAR meeting of the Academy of Stomatology was held on Tuesday evening, March 28, 1899, at the rooms of the Academy, 1731 Chestnut Street, with the President, Dr. M. H. Cryer, in the chair.

A paper entitled "Gout" was read by Jay F. Schamberg, M.D., of Philadelphia.

(For Dr. Schamberg's paper, see page 424.)

DISCUSSION.

Dr. Kirk.—The more I study the subject the less I feel I really know about it. The presentment which the essayist has made of the conflicting opinions as to the etiology of gout is an index of the present status of the subject. One may read Haig, Luff, Garrod, and a whole list of classics on the subject, and rise from the task in a state of mental confusion. It seems that each investigator contributes some actual facts based upon experiment and observation which go to the building up of our knowledge of this exceedingly complex subject. It seems to me that the thinkers about gout have largely been endeavoring to fit certain groups of symptoms to definitions, just as we have been endeavoring to fit a certain group of symptoms to the definition of pyorrhœa alveolaris. This has led to confusion.

There were many interesting, suggestive points raised by the essayist. I shall not attempt to go over them in full, but would recall his definition of the gouty condition. If it fits the disease in so far as some of the tissual reactions to the irritant uric acid or sodium urate or other salts of uric acid are concerned, then he would possibly exclude from the definition of gout a group of allied disorders. Irritants in the blood-stream—not uric acid, but cer-

tain other toxic substances—may be regarded as producing their effects in a strictly analogous way. Though their effects would not be clinically identical, yet they may be grouped as analogous disorders, as, for example, the group of disorders produced by the condition known as auto-intoxication, or the group of disorders produced by the presence of certain waste-products of nutrition other than uric acid in the blood-stream. Having this variety of sources of irritation, we have a correspondingly large variety of diseases due to tissual reactions to these several irritants. I have held that *pyorrhœa alveolaris* is directly related to such a condition. I have seen typical *pyorrhœa alveolaris* in the same mouth with gouty abscess, as described by Professor Darby, and in the mouths of individuals who were typical illustrations of uric acid diathesis; and because of the frequent association of those conditions, I have been confirmed in my belief that they were, in some way, closely related in etiology, and, acting on that belief, I have in a number of instances suggested and carried out the anti-gout treatment with very marked success in the relief of the oral condition. I quite agree with the essayist that the oral manifestations of the uric acid diathesis are of the utmost importance, not alone to dentists, but to medical practitioners, though few recognize the importance of these oral manifestations as pathognomonic of gout or lithæmia. The oral conditions usually precede the other acute manifestations of uricacidæmia and act as danger signals which should enable the intelligent physician to ward off a more serious outbreak.

As to the dietetic phase of the subject, I may say that I have seen this disease manifest itself in two distinct types of individuals,—the plethoric and the anæmic. Whether the anæmia and plethora were produced as results of the diathesis I am not prepared to say, but, nevertheless, excess of uric acid was manifest in both types. I have followed out Haig's idea of interdicting the use of butcher's meats in all cases, and have found that the anæmic types do not do so well when the highly nitrogenous food has been interdicted as they do when a proper allowance for the conservation of the nutrition of the economy has been made.

The essayist has indicated, but not emphasized as much as I had hoped he would, the depressing factors which lead up to gouty attacks. The dietetic side, important as it is, I believe to be less important than the one general principle that anything that results in a large expenditure of nervous energy, as, for example, overwork

or insufficient sleep, or both combined, or anything that disturbs the proper nutritional standard of the economy, is a predisposing cause of these gouty outbreaks.

I should like to talk at length on the question of oral manifestations of this systemic condition, but it is a matter that cannot be satisfactorily dealt with in one evening. The matter is still under investigation, and is engaging the thought and attention of a number of men, and I hope that in the near future we shall have more positive results of investigation to settle this important question of the relation of the gouty diathesis to the necrotic diseases of the periodental membrane.

Dr. Darby.—I was interested in what Dr. Kirk said about Dr. Haig's work. I hoped that I should have gotten some little comfort, perhaps instruction and benefit, from it, but I believe with Dr. Kirk that the prevention of gout, as described by Dr. Haig, does not work as well in practice as in theory. I do not think that it is so much what the man of a gouty diathesis eats as it is the quantity he eats, not so much what he eats as what he assimilates or does not assimilate, that gives him the gout. Some gouty subjects eat with impunity what others cannot eat. I myself have tried everything and done everything, have drunk from all the springs in this country and in Europe, and I do not know that anything has done me as much good as moderation in diet. Mark the word, *moderation!* I do not know that I have been any better when I have abstained from butcher's meat than when I have taken it in small quantities. While fish is recommended, there are gouty subjects who cannot digest fish; it is almost poison to them, and they had better let it alone.

Every gouty person, like every one who has not gout, ought to learn what he can eat with impunity and the quantity, and eschew the things he cannot eat and eschew the quantity he cannot digest and assimilate.

So far as waters are concerned, I think that a good spring water, as Dr. Schamberg has suggested, a gallon a day of it, is as good as any of the lithia waters or anything else in the way of spring waters. I have twice been to Carlsbad and drank very freely, and have twice taken the "cure" there. I do not know that I received any more benefit from that cure than I would had I stayed at home and filled my stomach with a large quantity of good pure spring water, such as Poland water. What a man needs who leads a sedentary life, such, for instance, as we lead, is water and pure oxygen, or

its analogue atmospheric air. With these he will have as good a remedy for gout as any body can suggest.

I am obliged to Dr. Schamberg for his paper.

Dr. Schamberg.—I recognize that within the brief confines of a twenty-minute paper it is impossible to treat of such a broad subject as gout in the way it should be treated. One is obliged to pass over a good many phases of the subject in entirely a too cursory manner and omit some features which might properly be discussed.

I am very much interested in what has been said by Drs. Kirk and Darby, and am in accord mainly with everything that has been said in the discussion. The mechanical theory of the production of gout is one which has not been indubitably proved; it has the great advantage of plausibility. Against the idea that uric acid is a blood-poison, we have the statement I made in the paper,—namely, that preceding an attack of gout, when the blood is surcharged with uric acid, the patient is in a state of well-being; he does not suffer from those symptoms which we find in a patient who is suffering with auto-intoxication, when the blood is full of toxins and perhaps micro-organisms.

Another point I wish to make is this: that in certain blood disorders, in leukæmia and in some of the essential anæmias in which there is a great increase of white blood-corpuscles, we have an increase of uric acid in the blood by these blood-corpuscles, and we do not know such symptoms as are seen in gout; and it is only when, for some reason, the solubility is lessened and its precipitation begun that we obtained the clinical symptoms of gout, whether in the tissues or the joints, in the various viscera or in the ligaments, bone or muscles, or other elements of the human body. It seems to me that most of the symptoms, even those of visceral gout, might be explained upon the mechanical theory; for instance, it is not beyond plausibility, that the deposition of uric acid salts on a nerve-sheath can give rise to neuralgia. Nor does it stretch the imagination to believe that asthma may be produced by the precipitation of salts and urates in the bronchial tubes, giving rise to spasm. So it seems to me that the mechanical theory is perhaps as plausible as any other that has been advanced. I agree with Dr. Kirk that the conditions have been fitted to theories, and that a great deal has been said about the value of a very limited meat diet, or the entire exclusion of meat as an article of food, and I agree with him that there are many cases of under-nutrition that require meat, perhaps in fair quantities, so that we can hold to no

hard-and-fast rules. The patient must be treated as a patient, and, secondarily, the disease treated.

I had under my care, and still have, a young man who developed several epileptic convulsions. The mother had been a long sufferer from migraine, which is known to occur in gouty subjects. In addition to using the ordinary treatment for epilepsy, —the use of bromides, which is perhaps the most valuable remedy, —this boy was cut off from meat diet, at first entirely and later partially, and although most of the bromides have been cut down to extremely small quantities, this boy remains free from epileptic convulsions, and I believe that the greatest measure of good has been accomplished by a low nitrogenized diet.

I think that the "cures" in foreign countries are often overestimated. As stated by Dr. Darby, a "cure" at home is frequently just as valuable. However, a man who is near the seat of his business and can leave the leisure which he is enjoying to take up some business problem is not so apt to live under a hygienic *régime* as in some foreign spot; but I am convinced that the large use of pure spring water, moderation in diet, both meat and vegetable,—because it is possible to be afflicted with gout from an excessive use of vegetables,—exercise, and a hygienic life will do most not only to prevent gout, but also a gouty diathesis.

Dr. Truman.—The latter part of the paper needs some explanation. I have hesitated to speak because I do not wish to bring up the subject, pyorrhœa alveolaris. But, if the paper goes out without a protest in regard to that matter, it seems to me it is in degree an endorsement of this Academy that all pyorrhœa is caused by gouty conditions. I am not prepared to endorse that, and I therefore wish simply to enter this objection, without discussing it.

Dr. Schamberg.—I referred in the paper merely to pyorrhœa alveolaris of constitutional origin, and in the papers I have consulted in reference to this full credit was given to gout.

I should like to ask, while the question is brought up, whether any of the members present have found gouty pericementitis in men who work in lead? It seems to me that a larger proportion of cases should occur in men of this occupation than others, and, furthermore, it is rather surprising that there is not a greater predominance of this affection in men than in women.

Dr. Truman.—As far as that is concerned, my observation at the University of Pennsylvania, Dental Department, shows that we have had quite as many cases of pyorrhœa there in women as in

men; I think the preponderance is rather on the side of the female than otherwise. I may say, in that connection, that the larger proportion—I have seen a vast number—have had no indication whatever of gout. I have taken a great deal of pains to inquire into the history of the cases, and I am enabled to say that a gouty diathesis has but little to do with it, and, to my mind, a large proportion is purely local.

Dr. Kirk.—If there is anything that I would like to see made clear to the minds of the dental profession, it is that pyorrhœa alveolaris is not a disease at all, but a symptom of disease; and it may be a symptom of a very large group of diseases. I fully agree with Dr. Truman that it should not be sent out to the world as the expression of opinion of this body of men that all cases of what are so-called *pyorrhœa alveolaris*, all cases where we have a flow of pus from the sockets of the teeth, are caused by a gouty diathesis. There is such a thing as dento-alveolar abscess. What is that but pyorrhœa alveolaris, according to the definition? And we all know very well that most of those cases are cases of septic infection, local conditions, and yet, strictly speaking, pyorrhœa alveolaris; and so there are a large number of chronic irritations resulting in necrosis of the retentive apparatus of teeth which are not necessarily associated with or caused by a diathetic condition. The difficulty lies in the fact that we have no definition of what constitutes a gouty condition. I am not at all sure that all these cases of necrotic inflammation of the retentive apparatus of the teeth are necessarily due to uric acid as a constitutional factor. I believe there are such cases. I do not hold at all to the so-called mechanical theory of the destruction of these membranes by the deposition of uric acid crystals. I believe that the blood becomes loaded down with poisonous waste-products, and we have these protoplasmic poisons carried to the peridental membrane, where they induce a process of necrotic inflammation. I think the systemic condition shows that there is something more than uric acid as the irritating factor. As Dr. Schamberg has truly said, in cases of uric acid rise in the blood we have a sense of well-being, or exhilaration, during the early stages, but that passes by and shortly is replaced by a sense of drowsiness followed by migraine. We also find associated constipation, either habitual or incidental to the attack. Constipation, I believe, is one of the factors which we find nearly always present in cases of pyorrhœa alveolaris, and when habitual is accompanied by absorption of poisonous matter from the retained fæces. I be-

lieve this is not to be expressed as altogether a uric acid infection, but as a toxæmia. These poisons are carried to the tissues of the periodontal membrane, and we have cell-death. I believe it is rather a chemical than a mechanical irritation.

Dr. Schamberg.—It seems that it might be possible for those who come in contact with pyorrhœa alveolaris to determine with mathematical accuracy whether or not they are dealing with a condition of gouty origin. It is known that after any attack of gouty arthritis there is a deposition of urates in the tissues, and if there is an opening made after these attacks, one may obtain crystals of uric acid, thus removing all doubt. These crystals are tested chemically. It seems to me that in pyorrhœa alveolaris, where there are concretions upon the roots of the teeth, it should be possible to scale off these concretions, and by a test with nitric acid and ammonia to be able to recognize minute quantities of urates. The uric acid does not occur in the blood normally, nor in the oral cavity, nor in the saliva, so that there can be no possibility of error from that source. The mere fact that a patient has not previously had gouty symptoms, or does not present at the time gouty symptoms, does not preclude the existence of gout. There may be latent gout present. If there is a gouty ancestry, or evidence that gout is present in some member of the family, this patient may have gout later on.

Dr. Kirk.—Chemical and microscopical tests have been made, and a short time after the publication of Dr. Peirce's essay on this subject Dr. G. V. Black, of Chicago, published a paper in which he showed that the urates of lime and soda were a constant ingredient of salivary calculus in all parts of the mouth. I have frequently made the test in these pyorrhœal cases, both by the microscope and by chemical test, but it is confusing, because one observer finds them in pyorrhœal cases and another in all cases. When I say pyorrhœal cases, I mean those which we suppose to be of constitutional origin.

It seems to me to be conclusive proof of the relation of certain forms of pyorrhœa alveolaris and gout, that under the therapeutic test of a proper anti-gout treatment these pyorrhœal conditions that are associated with gout recover or tend to recover. They respond promptly to treatment, and I think that we are as thoroughly justified in deducing, when a so-called gouty patient recovers under constitutional anti-gout treatment, that there is a relation of cause and effect, as, when a man recovers from an obscure

condition under iodide of mercury, to suppose it to be of syphilitic character.

On motion of Dr. Truman a vote of thanks was tendered to Dr. Schamberg for his interesting paper.

Adjourned.

OTTO E. INGLIS,
Editor Academy of Stomatology.

Editorial.

"EXAMPLE IS THE SCHOOL OF MANKIND."

IN our last issue expression was given to views held in regard to the conventions, that at this period dominate the thought of the active minds in dentistry, and as these will have been relegated to history before this number reaches our readers, it may be well to call attention to the exceeding value of a good example.

The thought usually connected with this is trite, and a moral homily is not proposed at this writing, nor would it be read in these August days, when nature and man grow indifferent to every effort save that of mere living.

The close of the conventions causes the thought, naturally, to turn to the moral accountability of these bodies, and it is here a word should be said. These organizations are the leaders of thought in the profession. If they fail in this duty, then they cease to be of value and deserve to go out of existence. This responsibility is, it is feared, not regarded by the members as it should be, hence the want of respect felt for these organizations by the best-thinking minds. There is a large body of men, active in their local societies, who are rarely or never seen at national gatherings. When the question is asked, Why do you not take an active interest in these organizations? the answer is almost invariably an expression of lack of confidence in their value. Those who do take part know that this is an error of judgment; but the fact that this feeling exists everywhere indicates a weakness somewhere in these associations that should be sought and the remedy applied. The National Dental Association, and all the State and inter-State as-

sociations, need these men, for they constitute the real strength of the profession, and it is time some measures were taken to draw them into activity in the larger fold, where the greatest measure of wisdom is needed.

The causes that have led to this indifference are rarely personal, and yet this is, by no means, a limited factor in driving men away. Two years ago the writer tried to call the attention of the members of the American Dental Association to the needs of that organization, or the one that might succeed it. It was broadly stated that one of the worst evils in that body was in the character of membership, that of permanent and delegated members. This was not understood then, and the explanation of the meaning will not be attempted now, but it may be stated that permanent membership means a clique, and this leads to control, and control disgusts the delegate who for the first time enters it as a representative. The result is a personal antagonism never overcome and a perpetual loss to the higher work of dentistry.

The duty of large organizations is to be exemplars of the best in everything. In so far as they fall short of this are they a weakness and a drag upon progress.

The dental profession in the United States has made most satisfactory growth in theory and practice, but in what may be called the higher moral excellencies it has remained practically where it was a half-century ago. It has failed to cultivate the professional spirit, and the reason why this has not been done lies largely at the doors of the national organizations. From the first body organized to the last there has been developed a petty commercial spirit, antagonistic to true professional spirit, and, in fact, has practically destroyed it.

This commercial spirit is so strongly entrenched in the minds of the members that any attempt to overcome it is always met with decided opposition. What is meant by this commercial spirit? The two national organizations now existing are the National Dental Association and the Oral Section of the Medical National Association. These, with the branches of the former, are supposed to concentrate the leading thought in dentistry. They have good meetings and a variety of papers of variable quality. What becomes of these? The meeting has hardly begun—indeed, oftentimes long before—when the proceedings are put up for sale. This may seem harsh, but it represents a fact. The matter is not auctioned off to the highest bidder, or are estimates ordinarily asked

for, but that journal is selected that has the largest backing commercially, under the supposition that this will offer the most favorable conditions. The excuse has been given that, "We can get the proceedings printed and bound without cost to the organization, and thus have money in the treasury to spend for scientific objects." This excuse might be a valid one if the money were ever spent for objects of a scientific value. There have been occasional spasmodic efforts in this direction, but the "value" of the results remains an uncertain quantity.

What is needed in all dental organizations is a high moral example. They should be above reproach. They should publish at their own expense all proceedings, or give them freely to representative journals. The dignified way is to publish independently and let the journals copy if they so desire.

The laxity in moral stamina in the leading organizations has had its legitimate effect in driving out almost entirely the professional spirit. The subordinate societies, following this example, sell their proceedings with all the coolness of the auctioneer. That this is not true of all, this journal has reason to know and to be thankful for, but what kind of professional morality is it that will dicker with trade and then call dentistry a profession? It is safe to assume that it will never deserve the name of profession until it learns to make sacrifices for knowledge. No high position was ever attained by the aspirant for honors who attempted to gain it by dubious methods. Organizations and individuals must alike be true, and in proportion as they are true to the higher ethical law will both develop to the same standard. "Example goes before precept," and the example of the good and true in organizations and in individuals is the corner-stone of the building we are expected to rear for the future, and we will be held accountable by generations to come if it be not perfectly laid.

Bibliography.

ANNUAL AND ANALYTICAL CYCLOPÆDIA OF PRACTICAL MEDICINE.

By Charles E. de M. Sajous, M.D., and One Hundred Associate Editors. Assisted by Corresponding Editors, Collaborators, and Correspondents. Illustrated with Chromo-Lithographs, Engravings, and Maps. Volume III. The F. A. Davis Company, Publishers. Philadelphia, New York, Chicago, 1899.

In the previous notices of this most valuable cyclopædia the reviewer has given but the one opinion possible, and that has been that each succeeding volume confirms the views heretofore expressed,—that they are the most satisfactory series in practical medicine in the English language with which he is familiar.

The editors and associate editors are all authorities in their special work, and the reader feels that in consulting them he reaches the highest standard of excellence. The editor, in briefly enumerating some of these, says, "The articles on 'Infantile Myxœdema (Cretinism),' by Professor Osler and Dr. Norton, of Baltimore; 'Exophthalmic Goitre,' by Professor Putnam, of Boston; and 'Goitre,' by Professor Adami, of Montreal, thus form a trio which may be said to point to much of the progress that is to attend medicine in the near future."

The subject of gout has of recent years attracted wide attention in dentistry, as it has been held by some to be the producing cause of several of the gingival and periodontal inflammations, especially that of pyorrhœa alveolaris. The article upon this disease is from the pen of F. Levison, Copenhagen, and it may be of interest to our readers to quote his opinion as to the treatment. He sums up this as follows: "In all cases the diet is to be regulated with a view to sustain the forces of the patient without allowing any excess of food; the patient is to be advised to limit the use of alcoholic stimulants and to avoid equally excess of work and of enjoyments, whereas bodily exercise and open-air life are useful. The patient ought to drink pure water of some aerated spring in sufficient quantity to keep the daily excretion of urine from three to four pints; if the urine be strongly acid and liable to precipi-

tation of uric acid crystals, the administration of small doses of some alkaline drug or spring should be resorted to to diminish the acidity and render the urine limpid.

"The gouty attacks are treated by rest, somewhat reduced *régime*, anodynes, if necessary, and colchicum; in the free intervals the resin of guaiac will be of use. The stiffness of the gouty joints and the tophi are treated by the dietetic introduction of lithia, by the hot-air bath, and by massage.

"A visit to some spring where the application of hot baths, douches, and massage are combined with the use of some aërated spring and good vivifying air will be of use to restore the forces and the spirits of the patient. Also a sojourn in some dry and hot climate is advisable, as well for the specific gouty symptoms as for the disease of the kidneys, which is the constant companion of gout."

The third volume opens with "Dislocations" and closes with "Infantile Myxœdema."

The type, printing, and general make-up corresponds with previous volumes, and is beyond criticism.

Domestic Correspondence.

DR. ANGLE'S REPLY TO DR. TALBOT.

TO THE EDITOR:

SIR,—In the May number of the INTERNATIONAL DENTAL JOURNAL we again hear from Dr. Talbot in regard to the operation of double resection of the lower maxilla. Evidently the doctor winces under Dr. Lukens's criticism (INTERNATIONAL DENTAL JOURNAL, February, 1899) of his intermeddling and childish and obsolete methods of attempting to establish priority, but instead of answering and, if possible, refuting the criticisms of Dr. Lukens, he passes him by and directs his attention at me, although it is difficult to determine his object, or what points he really makes.

In his remarks he is rambling, but reiterates that the suggestion of this operation was not original with me, but with the late Dr. W. W. Allport, and that Dr. Allport mentioned it to him more

than twenty-five years ago (by the way, Dr. Talbot's usual and favorite epoch when attempting to establish priority), but of this I have grave doubts for reason which I shall give later.

He further says that he (Talbot), with Drs. Allport, Brainard, and Gunn (all dead), was of the opinion that the operation was not indicated, from the fact that the pulps in the lower anterior teeth *might be* destroyed. "I have, therefore," says he, "refused to attempt the operation, although I have had a number of patients on whom such an operation might be performed with *éclat*."

Now, if it is true that these men really did discuss this operation from twenty-five years to four decades ago (although we have not the least evidence of it, other than Dr. Talbot's word), and were intimidated from performing it through fear of the possible death of a few tooth-pulps (which fear has been proven groundless), permitting this possible disadvantage to outweigh the great advantages of changing a practically useless dental apparatus to one of real usefulness and normal function through the re-establishing of correct occlusion of the teeth, as well as changing the facial appearance from that of a repulsive deformity to certainly marked and pleasing improvement, if not real beauty, they must have been bold and eminent surgeons indeed. But we cannot see how the world has been benefited through their connection with the operation any more than if these men had never lived, or what right they have to any mention in connection with it, especially Dr. Talbot, who was sceptical and critical even after the operation was successfully performed, as shown in his first criticism in the *INTERNATIONAL* for October, 1898, although in his last article under discussion, after finding that the operation was a success, he manifests a most radical change of heart and has suddenly become enthusiastic over the advantages and possibilities of the operation.

The reader should also remember in connection with this question that Dr. Talbot has written some two works on the treatment of dental irregularities (both, however, now practically obsolete, I believe), in which some considerable attention is given to the treatment of the deformity under consideration. He has also, as is well known, written voluminously for the dental journals upon the subject, all of which have been profusely illustrated, as well as elaborated by tables of statistics (the reliability of which, however, has been questioned). Yet throughout all these writings there is not the least hint or slightest suggestion that he knew anything about the proposed operation. All who know him well will agree

that this would hardly have been the case had the matter weighed upon his mind for four decades.

Now the facts with regard to my connection with the operation are these: Several years ago I became convinced, after seeing a number of cases of protrusion of the lower maxilla, that no devices or means known to the science of orthodontia would ever be successful in treating the pronounced cases, especially near or after maturity, and the thought occurred to me that we might successfully shorten the jaw by taking out sections on either side.

Naturally the first grave consideration was the difficulty of securing immovable apposition of the remaining segments of the bone, yet this seemed to me not difficult, for I at that time had several cases of fracture of the inferior maxilla which I had no trouble in immovably supporting, and I reasoned that the difficulties to be overcome in the proposed operation ought to be at least no greater than in cases of comminuted fracture, for with the former all the advantages of modern aseptic surgery could be invoked, while with the latter, oftentimes the most unfavorable conditions, accompanied by other lesions, must be met with.

Not long after this I discussed the operation with Professors Moore and Hunter (all living), of the Medical Department of the Minnesota State University, both well-known surgeons of Minneapolis, and still in successful practice there.

Soon after this, or January 18, 1893, in an illustrated lecture which I gave before the Minneapolis Dental Society on the "History of Treatment of Fractures of the Maxillæ," I described the proposed operation.

Since that time I have also described the operation and its possibilities before each of my classes in the American College of Dental Surgery and Dental Department of the Northwestern University, Chicago, and also in the Marion-Sims Medical College, Dental Department, St. Louis.

In another paper on "Treatment of Fractures of the Maxilla," given in December, 1895, before the St. Louis Dental Society, I also described the operation and its possibilities, which was discussed by Drs. McMillan, Fuller, Bartlett, Fletcher, Whipple, and others (all still very much alive).

During all these years I was anxious to find a suitable patient who was willing to have the operation performed. Once in Minneapolis I was consulted by a Mr. Cook, a medical student of the Minnesota State University, who readily comprehended the diffi-

culties and possibilities, and was willing and anxious to have the operation performed, and Professor Moore and myself had nearly completed the preliminary arrangements. It was, however, prevented by vacations and change of my residence, much to the regret of both Professor Moore and myself, as the more we thought about the operation the more we became convinced it would be a success.

The illustrations used by me in the *Dental Cosmos* of August, 1898, in describing the plan of securing fixation in these cases, to which Dr. Talbot refers, were made by the S. S. White Dental Manufacturing Company more than one year previous to the operation performed by Drs. Tupper and Blair, assisted by Dr. Whipple, and were intended, as stated, to illustrate a description of the proposed operation in my forthcoming book.

There is another bit of history in connection with this operation which it now seems necessary to disclose since Dr. Talbot's last unkindly insinuations.

I knew the late Dr. Allport. He was my friend. He occasionally visited his son, Dr. Allport, who lived in Minneapolis. He always paid me several friendly calls during these visits, at which time we frequently discussed questions relating to dentistry, and especially the one which has been for several years with me most prominent,—orthodontia. Always, when I had any new ideas, I would discuss them with him, and on one of these visits I described to him this operation. He at first did not seem to understand the operation I was describing, and said, "Why, that is the same as Hullihen's operation." I said, "No, it is very different. This involves removal of a complete section of bone and alveolar process on each side, while Hullihen's consisted in shortening the arch of the alveolar process after first removing V-shaped sections from the alveolus alone." He then quickly grasped the difference and seemed to think it might be successful, but he did not evince the least evidence of ever having heard of the operation before, much less having discussed it with Dr. Talbot.

Now, in conclusion, had I not repeatedly advocated the operation, in all probability the first would not yet have been performed, and Dr. Talbot, still intimidated by the possible loss of a few tooth-pulps, would be sitting in his office viewing patients on whom he might have (but did not) performed such an operation with *éclat*.

EDWARD H. ANGLE.

ST. LOUIS, MO., May 17, 1899.

Current News.

TO THE ALUMNI OF THE DENTAL DEPARTMENT OF THE UNIVERSITY OF MARYLAND.

WITH the consent of the Faculty, it is thought fitting that some recognition be made of the founders of scientific thought and dental education in this country.

A movement has been inaugurated within this institution which appeals to every member of the dental profession, but more particularly to our alumni.

It is proposed to erect in the University a memorial tablet to Dr. Horace H. Hayden and Dr. Chapin A. Harris, who are now justly accorded their position as the fathers of dental science.

An elaborate design for a mural tablet, by Mr. Ernest W. Keyser, the American sculptor, embraces alto relievo busts of Drs. Hayden and Harris, which were modelled in Paris from photographs furnished by their respective families. The portraiture of these life-size busts is remarkably faithful, and the design has been accepted by the committee. Blanks for subscription are enclosed, and it is hoped that each dental alumnus will co-operate by even the slightest contribution.

Is it not a happy thought that the Alumni of the School which was the first to encourage scientific dental instruction (dental lectures to medical students given by Dr. Hayden in this University, 1837) should be the first to place in its time-honored halls a memorial tablet, not only to Dr. Hayden, but also to his brilliant collaborator, Dr. Chapin A. Harris?

This statement is made to the Alumni, trusting to their liberality that the unquestioned services rendered by Drs. Hayden and Harris should receive its meed of recognition, and this tardy testimonial reach a successful consummation.

JOHN C. UHLER, M.D., D.D.S.

ISAAC H. DAVIS, M.D., D.D.S.

CLARENCE J. GRIEVES, D.D.S.

HARVARD DENTAL ALUMNI ASSOCIATION.

THE third annual "Alumni Day" of the Harvard Dental Alumni Association was observed at the Harvard Dental School on Monday, June 26, 1899, when nearly one hundred and fifty members and friends registered their names with the committee in charge.

The exercises consisted in a display of models and specimens, with patients present, showing the year's work by freshmen, junior, and senior students, embracing all classes in all departments. Papers were read and a symposium given on three subjects; also clinics given on four subjects.

The twenty-eighth annual banquet was observed in the evening at Young's Hotel, Boston, with one hundred and seven individuals seated.

Rev. George C. Lorimer, D.D., pastor of Tremont Temple Church, delivered the annual address, his topic being "The Making of American Character," which he outlined from the race beginning before this country was settled to the present time.

Professor Eugene W. Smith, Dean of the school, the next speaker, gave an outline of the contemplated consolidation of the faculties of the dental, medical, and veterinary schools, with a hospital in connection with these schools.

Professor Thomas Fillebrown gave a *résumé* of the thirty years' advance made by the school since he was a member of the first class to graduate.

Dr. Frederick A. Stevenson, '88, of Montreal, P. Q., addressed the Association, and Herbert A. Reed, of North Attleboro', Mass., responded for the class of '99.

Officers elected for the ensuing year were: President, Edwin C. Blaisdell, '83, Portsmouth, N. H.; Vice-President, Cecil P. Wilson, '72, Boston, Mass.; Secretary, Waldo E. Boardman, '86, Boston, Mass.; Treasurer, Harry S. Parsons, '92, Boston, Mass.

Executive Committee.—Waldo E. Boardman, '86, *ex-officio* chairman; William P. Cooke, '81, and Patrick W. Moriarty, '89, all of Boston, Mass.

The Council is composed of the officers of the Association.

WALDO E. BOARDMAN, '86,

Secretary.

BOSTON, June 30, 1899.

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Original Communications.¹

DENTAL ORGANIZATIONS IN THE UNITED STATES: THEIR MISTAKES AND FAILURES.²

BY WILLIAM H. TRUEMAN, D.D.S., PHILADELPHIA.

AN editorial in the *Dental Digest*, April, 1899, page 284, entitled "Society Organization of the Dental Profession," in which the writer deplors the small representation of the dental profession actively engaged in society work, has suggested the following thoughts. It is but one of many lamentations which in various forms within recent years have appeared in our professional journals. They have been inspired by the too evident general indifference of the dental profession towards its professional organizations. Some have urgently appealed for an explanation of this indifference, its cause, and any suggestions which might tend to promote a more general interest in societies and society work. I do not recall any attempt to answer these. Very seldom, indeed, have I seen any plausible suggestion as to the cause or the remedy. On both these points the editorial in question simply suggests a change in meth-

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read before the Pennsylvania Association of Dental Surgeons, June 13, 1899.

ods of selecting officers so as to have less politics, and to separate as much as possible business matters from scientific discussions. The real cause, and the real remedy, I am impressed, he has failed to touch.

When we reflect upon the very meagre results of sixty years organized effort to better the profession; that two national associations have during that time come and gone; that all over the country dental societies have been organized by the score; that they have been usually short lived; that, whether they have existed a few months or a score of years, they have passed out of existence leaving no visible assets, it is very evident that there has been a screw loose somewhere. Looking around, there is but little encouragement that this condition of affairs has materially changed. But one dental society in the United States, now active, has had a continued existence of half a century, and but few, if any, are doing anything more than to provide, in a hand-to-mouth fashion, for their present needs. The elements of permanency are wanting. A little quarrel, and the stronger party withdraws, organizes a new society, leaving their former comrades to struggle along for a little while and then to drop off and recruit the over-full ranks of the indifferent and the disgusted. It is not so in other professions. They have held together. They have looked beyond the present and have provided for the future. A society that spends part of its income in collecting and caring for a library and museum, or strives to possess some evidence of permanency, as have those of the medical profession in all of our larger cities, very soon has too much at stake to permit these little quarrels to take a serious turn. They have a home to love and care for; a common property, the value of which is a bond of union. It stimulates their pride, and its increase and care gives them something tangible to work for. The educational value of these libraries and museums is beyond compute. What encouragement is there for a dentist to invest in professional journals or in professional books, knowing, as he does, that when his short life is closed their usefulness is in all probability ended. To his executors they have no value, and are too often consigned to the paper-mill or the dump. He therefore buys as few as possible, and as there are no dental libraries to supplement his own meagre collection, his reading is restricted. His medical brother is far better provided. His professional society has made provision for his educational wants a prominent feature, and not only has he access to many large and well-arranged collections, but knowing that these

medical libraries always welcome and properly care for anything left to them, he is encouraged to increase his own belongings, feeling, as he does so, that later on they will prove as useful to others as they have been to himself. He is not only broadened by his more extended reading, but loses more and more of self, is brought more in accord with his fellows, and feels, naturally, a keener interest in professional matters. His membership in a medical society having these advantages and privileges has a far greater value than has a membership in a dental society to his dental brother, conducted as most of them are.

I take this to be the fundamental error in dental society organizations in the United States. While, undoubtedly, they have had great educational value, and have done much, very much, for professional advancement, they have failed to reach, in this direction, possibilities. The stated meetings, the papers, the discussions, the social features, are all very good in their way; providing, as they do, means and opportunity for interchange of thought; they are, however, but passing events. We soon become familiar with the thoughts and ideas of our fellows in even a large society, and in a short time, with nothing else to depend upon, the proceedings lose interest and the best efforts become as an oft-told tale. Were these supplemented by opportunity for consulting a variety of professional journals and the educational advantages of a well-arranged library, a life and interest-giving variety would be introduced. Our views of men and things would be broadened, and the dental society become more useful and instructive. In order to bring this about we require a concentration of interests, fewer and stronger societies, more united as well as more active work. In my judgment, abandoning the older organizations and formation of new ones on slight provocation has been a serious mistake. They have had a history, and there is something very pleasing in keeping up the connecting links between the present and the past. We should have taken greater pride in supporting and maintaining those associations which in their day have done so much for our profession. We have been living too much in tents, having no settled home, no firm attachments; living in the present selfish lives, having no reverence for the past, no care for the future, and but little respect for any but ourselves.

It is this, I would suggest, which has largely hampered our professional advance. The only tangible evidence of solid growth is seen in the dental colleges. They have accumulated a little here

and there from the past, and are to-day making this useful and adding to their inheritance. It is, however, in most cases, that which their poorly paid teachers have been willing to contribute to increase the usefulness of the institutions they served. What they gave, they gave to the colleges, not to the profession, and it is as truly private property as are the furnishings of your office or mine. Outside of this, notwithstanding that many members of our profession have acquired large fortunes, and dying have left a fair share of their accumulated wealth for the world's betterment, I cannot see that our profession, as a profession, is any richer to-day than it was sixty years ago. It has no open door inviting such benefactions, as other professions have; nor has it, to any appreciable extent, so far as I can see, provided for itself, added to, or in any way bettered its educational facilities. We have more dental journals. Only one, however, can be considered professional property. All the others are as much commercial enterprises as are the colleges. I mean no reflection on either in saying this. I simply desire to call attention to the fact that when we point to the dental colleges and the increase of dental literature of various kinds as an evidence of professional growth, it is well to bear in mind that they have been supplied by those who cater to our needs in much the same spirit as that in which our offices have been supplied with instruments and our laboratories with tools. That which members of the dental college faculties have contributed, which has remained with the colleges after they have left, is about all that has been unselfishly given, and but little of this, as I have before said, can be truly considered a professional belonging. I am well aware that from time to time attempts have been made to remedy this, but they have been poorly sustained. Of the many dental societies, I know of none which have reached a stage of assured permanency, none which have so far advanced in that direction as to warrant making them the recipient of a legacy with any assurance that it would prove of lasting usefulness. When we complain that the masses of the dental profession take but little interest in society work, let us ask, What have the societies to offer for their time, their interest, and their money? What can a dental society offer now to a prospective member more than it could sixty years ago? Is membership in a dental society more valuable now, or more to be desired, than it was then? In what respect? Why? Why not? These are questions which go to the gist of the whole matter.

With but few exceptions the dental societies of to-day offer to

their members nothing more, and nothing better, than did those of more than half a century ago. The increase and the cheapening of periodic dental literature, and its consequent wider circulation and the facility it affords for interchange of thought, in some respects more pleasantly and more conveniently than at the dental society meeting, has to a far greater extent than is, perhaps, appreciated made the dental society as it now is less necessary to a progressive dentist. He may now, at his leisure, write his wants or contribute his mite, sure of finding an open door in some one of the many journals, and is there sure to meet a far larger and too often a more appreciative audience than the dental society affords. It is true, he may miss the verbal comments, the more rapid interchange of ideas possible by spoken than by written words, and the inspiring visible presence of auditor and audience; and quite as likely escape the rasping, temper-trying, ill-natured remarks of some dogmatic assertive boor. He will also escape the annoyance of having his labored and carefully prepared paper sandwiched between some trivial business affairs, or held until it becomes stale by a dilatory publication committee. The American Dental Association, so my experience there impressed me, was in these respects a sinner above all other sinners. Not infrequently unimportant and trifling business was needlessly injected between the reading of a paper and its discussion, or in the midst of a discussion, to so great an extent at times as to entirely break up the interest a well-prepared paper had incited. Members rising to speak in scientific discussions were curtly informed from the platform that they had no right to speak until they had paid their yearly dues. Again, visitors, known to be well informed upon matters before the Association, and on that account invited to speak, have been, as soon as they complied with the request, called down by an ill-mannered, discourteous member because, forsooth, the rigid enforcement of some petty rule, resolution, or by-law was, in his estimation, more important than a decent respect for a professional brother. More than this, its members have not only permitted, but they have repeatedly encouraged, by their applause and demonstrative enjoyment of the fun, silly jokes, violent aspersive language, the nonsense and antics of a circus clown, to break in upon serious professional discussions, or to be aimed at fellow-members, visitors, or those who had contributed papers or had taken part in the discussions. Is it any wonder that a society permitting this year after year should find its ablest men after a time becoming weary; or that the papers brought before it

should show but little thought or care; or that the profession at large should take so little interest in it that finally, in the unclassic language of one of our able men, "*it petered out*"?

Both National Associations were extremely unfortunate. The first, on account of the very pronounced antagonism to amalgam on the part of its organizers, failed to secure, in the first place, that united support it otherwise would have received; and later, it failed to retain within its ranks many strong and progressive members of the profession. They claimed the right to practise as their experience and judgment suggested, and refused to assume, or to be bound by, any obligation that in the least degree curtailed this right. The lesser question was overshadowed by the greater. It was not, in reality, amalgam or no amalgam; it was much more than this. If the right of the society to interdict amalgam was conceded, why should it not take up other matters of practice and further hamper its members in their daily work. The local societies followed closely the lead of the National Association; and it is a significant fact that, of the many organized during this controversy, none that took any active part in it prospered. The same causes that operated so disastrously to the National Association more quickly, because of the more intimate relation of its members, ended the usefulness of these local societies.

There was thus spread widely, at the very beginning of organized effort for professional advancement, as the result of this attempted "bossism," a feeling of distrust and disgust, which through the unwise management of our societies, and the thoughtlessness or recklessness of those who have been permitted to poise as professional leaders, has been kept alive to the present day, and this has, undoubtedly, been an important factor in keeping away from the dental societies a large proportion of the members of the dental profession. The Mississippi Valley Association, although it adopted the amalgam resolutions, immediately forgot all about them and took no active part in the controversy, and lived to celebrate its golden anniversary. It ceased to exist only when changes of population made desirable a rearranging of society work. The Pennsylvania Association of Dental Surgeons, organized a little later, at a time when the battle waged hot, ignored the whole matter. It has from the very first stuck closely to business, and has confined its efforts exclusively to assisting its members in being helpful to each other, and advancing professional interests; it has never sought to hamper them in the slightest degree, and has always dis-

couraged unprofitable controversy. Its meetings have been harmonious, and the work it has accomplished and the impress it has made upon professional matters few, if any, dental societies have equalled. It still lives, holding its regular meetings as it has been doing for more than fifty-two years, and is now the oldest dental society in the world. Had it not been for the unfortunate controversies which made united action and harmony impossible, the history of many of the early dental societies would have been equally satisfactory, and the relation of the dental profession to its professional societies would now be far more harmonious than it is. There is a lesson in this the thoughtful men in the dental societies would do well to heed. No dental society, either national or local, that courts controversy, or that is so organized or conducted as to encourage it, will ever prosper. The thinking men of our profession, the men who do the real work, and who alone are to be depended upon to give stamina and permanency to these organizations, must ever be reckoned with. They always have, and always will, insist upon the right to use, without constraint of any kind, their own judgment upon all matters of practice. This is, in their estimation, more valuable and more precious than is membership in a dental society. Whether the society insists upon a signed obligation, or the tacit acknowledgment of one by accepting membership, as did the older ones; or, under the plea of elevating its members to a higher standard,—as generally used, a senseless expression,—permits or encourages a hue and cry to be raised regarding matters of practice, the use of this or that remedy or device, or permits in discussion reflections upon the intelligence, skill, or integrity of its members, as both the National and many of the local societies have repeatedly done, the constraint is the same, and those subject to it, many of them, in the future will do as others have done in the past, leave the society rather than be subject to the taunts and jeers of their fellows, or abandon that which they have found satisfactory. In social intercourse, within very wide limits, we instinctively avoid encroaching upon the privacy of our associates' households, or attempting to dictate upon matters of purely personal taste. Why should we not exercise the same wise discretion regarding the professional relations of fellow-practitioners? What right have we to say what he shall use, or how he shall use it; what he shall do, or how he shall do it? Why should any one be accused of "abysmal ignorance," proclaimed a "slovenly fellow," a disgrace to his profession, or a mercenary knave, for

speaking as his own studies and experience dictates, or using those methods which he has found most desirable and satisfactory to himself? Can we wonder that professional gentlemen, of which the dental profession is so largely composed, have given the "go by" to societies which have for so many years encouraged the use of these objectionable expressions, by so frequently permitting them in scientific and professional discussions? The dropping out of those who object to such things naturally left in the societies an undue proportion of those in whom gentlemanly instincts have been but imperfectly developed, and has compelled them to recruit largely from the same undesirable class.

The disgusted fathers have transmitted their grievances to their sons; the preceptors to their pupils; and thus it has come to pass that the profession has in this respect gone from bad to worse. Those who, despite of all this, while earnestly deploring it, have loyally held their place have been too few in numbers to check materially the growing evil. Here and there are local societies which are endeavoring by careful selection of members, by thoughtful and carefully planned organizations, and by example, to bring about a better state of things. It is, indeed, high time that it was done.

I would that we could stop here in reciting the causes which have brought about the condition of affairs the editorial referred to deplores. But the story would be incomplete. Our educational interests have furnished much cause for mischief. While admitting that years ago there was a marked laxity in dental educational institutions, I would remind you that this laxity was not by any means confined to them. It was common to all the professions in their early educational efforts. We must remember, also, that these dental colleges, which have been so freely and I think so unjustly censured, were, at the time that these changes could have been justly made, competing on very uneven terms with the private preceptor. It was very much easier, very much more convenient, and far less costly for a young man to spend a few days, weeks, or months, or even a year, with a village practitioner near his home, than to spend a year or two in a distant city. There was, indeed, but little encouragement for him to take the latter course, knowing, as he did, that on returning home he would likely find that a more economical although less ambitious competitor had in the mean time gathered up in his own intended bailiwick a fair share of the available material from which a practice is made. It was to the best interests of the profession that the colleges of that day made

the prescribed course as easy and accessible as they did. Had they done otherwise it is quite likely so few would have accepted their terms that even to this day the private preceptor would have had by far the largest classes. It was only the wide distribution of college diplomas that made dental laws possible, and introduced this important factor in dental education. These laws have given to the colleges the support they needed to improve and advance. This they have steadily done. Naturally, as the dental enactments became more general and more exacting, and the private preceptor was thereby crowded out, the college classes increased in numbers. The profession in the public mind assumed greater importance, and as a means of livelihood has of late become vastly more popular. As these changes progressed, and in response to a demand, the dental colleges rapidly increased in number all over the country, with crowded classes, the commercial instincts of some of our professional brethren were aroused. They saw in all this nothing more than fewer or lesser fees, and became clamorous that something should be done to curtail this impending competition. They began to look upon the colleges as enemies, and naturally, impelled as they were by the same motives, adopted methods this thought suggested, borrowed from more humble callings.

While the advent of examining boards marks an important epoch in dental education, it has not proved an unmixed good. It was the first effective blow at the inefficient private preceptor. The examining board idea was introduced to prevent the entrance into the profession of the private preceptor's incompetent pupils, and to encourage students to seek the more thorough and systematic training the college course afforded. To this end, in the beginning, competent men were selected and empowered to examine all aspirants for dental practice unprovided with a college diploma. They were to judge whether their acquirements were or were not sufficient to warrant endorsement as dental surgeons. While there was at the bottom of all this the thought that those who had spent time and money to acquire a broad and thorough knowledge of the science should be legally protected from the competition of those who were, very many of them, grossly incompetent, nevertheless, there was, actuating those who organized the movement, a higher and nobler motive. These members of the dental profession, feeling keenly a responsibility for the irreparable injury constantly suffered by the community at the hands of incompetent practitioners, and a loss of prestige due to their many failures, felt justified in asking

legal authority from the State to protect the public from damage and their calling from disgrace. Others of the profession, however, saw of the movement nothing more than its commercial side. It suggested to them a feasible method of restricting competition, and they hoped and expected that it would result in lessening the number admitted to professional rank. It did not, however, do so. Notwithstanding that the college course became practically obligatory, and that the dental colleges steadily raised their requirements, there has been a rapid increase in the number of dental students, calling for an increase in the number and capacity of the dental schools. Naturally this totally unlooked-for outcome of so promising a scheme proved to them a bitter disappointment.

As these matters developed, the discontented in our professional societies, urged thereto by reckless leaders who saw in this an opportunity of obtaining a prominent position in the profession with the smallest outlay of money, time, and labor, began in a thoughtless fashion to criticise the colleges. They had been persuaded that, somehow, the enactment of dental laws and their vigorous enforcement would bring them more business and larger fees. As neither were forthcoming, while the dental colleges were enjoying an undreamed-of prosperity, turning out graduates by the hundred, and brand-new signs appeared in close proximity to their own offices, they became clamorous for more actively aggressive measures. The colleges, as an open enemy, supplanted the private preceptor; as the dental examining board has suppressed the one, why should it not repress the other, and at once end this ruinous competition? That the competitor was in many cases the better man; that he in the natural order of things simply took the place of one who after many long years of efficient service was physically incapable of further holding the position in the community he had formerly honored, counted for nothing. It comes to all of us, if we live long enough, to know, as we look upon a youthful and vigorous competitor, that "he must increase, but I must decrease," yet how hard, how very hard, in many cases to gracefully acknowledge it. The dental examining boards had extirpated the pernicious private preceptor; why should they not be continued as a check upon the colleges? Equally, as when first organized, there was, outside and beyond commercial interests, a good purpose to be served in continuing the examining boards after the cause of their creation had practically ceased, *provided* that they were composed of wise and judicious men. This has not always been the case. Too often commercial interests

have prevailed, and it has come to pass that men have been selected for that position simply because they were known as outspoken opponents of the colleges. Through this has crept in an evil that has done much mischief in our dental societies. For electioneering purposes, wild and malicious statements have been made concerning colleges and college teachers, worded in such a way that an answer was impossible. Unimportant matters have been magnified and twisted to the verge of positive untruths, and in too many cases the line has been overstepped in much the same spirit and with precisely the same motive that prompts labor leaders to foment trouble between employer and employed. Were these statements, so loudly made and so frequently repeated, at all definite, they could be at once disposed of, proved or disproved.

What can be done with such statements as these, taken from the May number of the *Dental Digest* (1899), page 363. They are found in an editorial in which it is contended that the so-called National Association of Dental Examiners are the body to fix the standards for the dental colleges. The writer claims that at least half of those who graduate never start in practice, and charges that this is all due to the colleges not weeding out those unfitted for the calling. As to how this is to be done he is discreetly silent. He further charges that the infirmaries in many schools are run to make money rather than to educate the students; that some colleges are controlled by the dental trust supply-houses, who insist that their students shall trade with them exclusively on pain of being "thrown" on examination day. These are sample statements that figure largely in discussions upon educational matters. They would be more to the point if they designated the colleges and the supply-houses implicated. It would be interesting and instructive to know, for instance, when asked regarding the relative merits of the various schools by young men about to begin a dental course, whether the editor refers to the Dental Department of the University of Pennsylvania as one of the colleges controlled by a dental supply-house; and also, what college or colleges the Dental Protective Supply Company has under *its* thumb. If true, what use is such indefinite information to me or to you as a guide to the standing of any one dental college in the United States? I characterize such statements, wherever and by whoever made, mean, cowardly, and malicious. They are prompted by no honest purpose. They arouse, and are intended to arouse, a feeling of distrust with no possibility of accomplishing the slightest good. (In making this

reference I wish to state, in the most emphatic manner possible, that I have not selected the *Dental Digest* or the writer of its editorials as an object of criticism; for the journal and its editor I entertain feelings of the most profound respect. I have referred to it, and to him, in this connection from the simple yet curious fact that since planning this paper these matters have appeared in its editorial columns; their freshness and ready accessibility has prompted me to accept them in preference to others previously noted. They are "stock-in-trade" arguments, and common property.)

It would be, indeed, a glorious thing if the dean or the faculty of a dental college could, even by the end of the first year, with any chance of being just, say to a student, "I advise you to discontinue your studies. I see enough to know that you are simply wasting your time; you will never make a successful dentist." Can it be done? Please tell us how. Demonstrate its possibility before using the fact that all graduates do not turn out well as an argument to foment discord and distrust in our dental societies, or to impeach the honor and integrity of those in charge of our educational institutions. The initial education, social position, financial standing, important factors as they are at times, neither one nor all insure success, nor does their absence make it impossible. Experience has repeatedly proved this. The soothsayer's art is equally uncertain.

The evil effects of these loose irresponsible statements, which have for so long a time formed the staple detractive arguments in discussions of the dental educational question, especially in the State and National societies, are beyond measure. They pamper—professionally speaking—the vilest and most depraved tastes. Read, if you please, the articles published at various times and in a number of our dental journals by a member of the New Jersey State Dental Examining Board, sent broadcast as specimens of the educational standing of graduates from American Dental Colleges,¹ containing a number of answers culled from examination papers submitted to the board. I know he states that they are not all as bad as those he gives, but what good purpose was served by making the exhibit at all? What other intention could the board have, or could it have had, in permitting their publication than to magnify their office and belie the colleges. Some of those answers, to my

¹ *Items of Interest*, vol. xix., August, 1897, page 553.

notion, were faulty only in spelling and grammar, and, considering the circumstances under which they were written, were far more excusable than is the bad taste and breach of trust in making them public. No more are they a reflection upon the educational status of graduates from American dental colleges than is the article from the same source found in the August number of the *INTERNATIONAL DENTAL JOURNAL*, 1898, page 558, a reflection upon the profession of which he is a member. It simply shows that professional ethics in the dental profession must be at a low ebb in the State of New Jersey to permit such things.

The most rigid and exacting rules do not prevent, as our police reports too frequently show, dishonest men obtaining employment in well-managed banks and business houses; even the safeguards around the sacred desk, at times, are inefficient in preventing wolves in sheep's clothing playing the rôle of religious teachers. Now and again colleges graduate men they ought not; likewise dental societies sometimes admit as members, even place in responsible positions, men who do them no credit.

The liberty allowed in our dental societies in these cowardly attacks upon the teachers and the colleges has been most demoralizing. If a college is doing wrong, or a teacher in it acting unprofessionally, and a member feels that it is his duty to make it known, let him do so openly like a man, giving the names with the facts. If this had always been insisted upon, how quickly these discussions would have been brought to an end. How much less friction we would have had. How much more unity and harmony; how much more respect for our colleges, our teachers, our societies, our profession, and ourselves.

We lament that so few young graduates become interested in society work. How can they? Is it not natural that a young man should hold aloof from a society that permits, that encourages its members to belittle the college whose diploma he holds? Can you expect him to affiliate with men who in season and out of season assert that the teachers he has learned to honor and respect cheat half the students who come under their care, taking from them their money and giving nothing valuable in return? How does he know but that you refer to him, and his alma mater? He does not ask, he does not care. If he has within him the making of a true, manly, professional gentleman, his whole soul revolts at the thought of uniting with such a set of character assassins. The atmosphere of such a dental society is so different from that of the college that

it stifles him; he prefers to be outside; and let me say, *I honor him for his choice.*

I am one with those who desire a higher and broader educational standard for our profession, but see no reason why we should wait until a new generation has grown up to obtain it. Let it begin right in our dental societies, and begin *now*. The members of the societies, many of them, need it far more than do the students. First of all, let us learn to treat each other as gentlemen; enforce in all the societies, from the National down, that strict discipline recognized in all clubs of well-bred, self-respecting gentlemen. Send the backbiters, those who are aping the Debs and Irons of trade-union fame, to coventry, and *make them stay there*. We want, most of all, harmony and united action between the societies and the educational institutions. We need on the examining boards broadminded, dignified professional gentlemen, who have the good of the profession at heart, men of character and standing, who can command and retain the respect of their fellows. We need such men as these most of all, and most urgently in the National body, to replace the men who have so signally proved their unfitness for the position they hold. We must have harmony, and to secure it can best spare the men who in the past have ever been promoters of strife. If we would advance along professional lines, we must rise above that commercial spirit which sees in each addition to our ranks a business competitor, and strive to help each other to a higher, nobler, better professional life. Let us make our dental societies post-graduate colleges; providing within them the means by which each and all may find something suited to their needs; make them societies that it is worth while to belong to. Let us learn to down that selfish spirit which sees nothing good in what another does, feels no interest in another's welfare, and takes no pride in our profession's future. When we fraternize, let us be as David and Jonathan, not like Cain, who slew his brother.

DENTAL LEGISLATION.¹

BY FREDERICK A. STEVENSON, D.M.D., MONTREAL, CANADA.

IN discussing the subject of dental legislation, I have thought it best to speak of that with which I am most familiar,—namely, the dental law and its enforcement in the Province of Quebec, Canada.

There are no doubt many who do not see any necessity for interfering with the liberty of the individual to the extent of insisting upon certain requirements being fulfilled before allowing him to practise dentistry. They claim that legislation has only prevented progress and not aided it, and point to those places where dental legislation has been in force the longest as examples of their contention. It will be found, I believe, upon investigation, that when dental law exists together with a low standard of skill, the fault is due to the lack of enforcement of the existing law. Take the Province of Quebec for example, there we have had a stringent dental law since 1869, and we have not many dentists (about two hundred, I think, nearly all of whom are trying to make a living in the city of Montreal). The standard of dental skill in the Province is probably lower on the average than on the rest of this continent. The backward state of dentistry there is due to the timidity or, which is the same thing, the conservative methods of the leading men in the profession. They were reluctant to establish a college of dentistry for fear that there would be so many dentists turned out in the course of a few years that no one would be able to make a living. About five or six years ago, when there was an agitation among some of the younger men in favor of organizing a dental college, one of these worthies came back from a commencement at the dental college in Toronto, where he had been to make a speech, and brought a tale of woe to the effect that there were so many dentists in Toronto that fees had gone to pieces. Men were filling teeth with gold for one dollar, and for amalgam fillings they received only fifty cents. The dentists there were glad to combine a little life insurance business with the practice of dentistry, in order to eke out a precarious existence. There are prob-

¹ A paper read before the Alumni of the Harvard Dental School, on "Alumni Day," June 26, 1899.

ably men in Boston to-day who are receiving fees on about the same scale as those above mentioned. I know that there are in Montreal, and they have been there ever since I have known anything about dentistry in the city. All this, if rightly judged, is not an argument against raising the standard of dental education, but one strongly in its favor. Will a man who has passed a stiff entrance examination and spent three or four years in acquiring the knowledge and skill requisite for the practice of modern dentistry be content with day laborers' wages? I think not.

Another reason brought forward by these very conservative gentlemen, more commendable, perhaps, as it showed the modesty of their estimation of their own acquirements: They claimed that there were no men to be found who were qualified to give lectures or to demonstrate practice. However, in spite of obstruction, instructors were found who were willing to give their time and work for the good of the cause, and we have now a dental faculty who are doing excellent work and who are not too old or set in their ways to adopt suggestions and ideas simply because they are new. The course is given in French as well as in English. The student of dentistry under the old *régime* was under notarial agreement with his preceptors to serve him for four years. He learned what he could in the work-room, mixing plaster of Paris and polishing rubber plates. It followed, as a consequence, that the examining board were afraid to hold a thorough examination, and every man who had faithfully put in his time obtained his license after passing a very easy examination. Of course, many an ignorant and incompetent person was let loose on the public, and we have had periodical doses of quack advertising by these men, which, of course, degrades us socially in the estimation of our sister profession of medicine and in the eyes of the public. Since the establishment of the dental college there has been a great improvement in the classes of students. This has also been greatly helped by the adoption of a higher standard for the preliminary examination which must be passed before the applicant can register as a dental student.

The reason for the backward state of dentistry in the Province of Quebec is, therefore, to be found in the inadequate provision formerly made by the Dental Association of the Province of Quebec, for the education of students, and also in the timidity of the executive board in enforcing the existing dental law.

The most sensible remedy for the state of things above described, it seems to me, would be to have a dental law for the whole of the

Dominion of Canada, instead of each Province legislating for itself.

As it is at present, no graduate from the Dental College of the Province of Quebec can practise in Ontario, and no graduate from the College of Dental Surgery of Ontario can practise in Quebec.

If in the United States there could be a central executive board or college of dentistry, whose duty it should be to establish the regulations and requirements to be fulfilled by every one entering the dental profession, it would have the effect of raising the standard of average efficiency, and tend to draw the whole profession together.

This national college or board could give a license to practise, but need not necessarily confer a degree or be a teaching body. The various colleges already in existence would not feel, in that case, that their privileges were being encroached upon. This national college or board would be an examining body simply; besides examining candidates, it could issue a list of colleges whose graduates would be entitled to practise without further examination.

The question of a preliminary examination is an important one. I can testify to the great improvement at once noticeable in the men who entered dentistry in the Province of Quebec after the adoption of a high standard of general education.

We have not yet adopted the suggestion already talked of in this country,—namely, that of a mechanical examination as part of the preliminary,—but I think it a very valuable suggestion and one which deserves to be carefully worked out.

What we want in dentistry, as in every profession, are men of brains and common sense, and if dental legislation does not help us to that, then the sooner it is discarded the better.

Where dental legislation is to be of real service to the public and the profession it should provide a law, stating the requirements necessary to be fulfilled by persons before being licensed to practise, and should also contain clauses whereby the executive board should be empowered to suspend or confiscate the license of any dentist in active practice who infringed the by-laws enacted for the good of the public and the profession.

The following is a brief summary of the dental law of the Province of Quebec.

1. All licensed dentists practising in this Province are incorporated under the name of Dental Association of the Province of Quebec.

2. Board of Examiners are charged with managing the business of the Association.

3. Number of the members who form the Board and method of election.

4. Powers of the Board defined. They enact by-laws subject to approval of the Association and appoint the faculty of the dental college.

5. Requirements to be fulfilled before entering the examination for license.

6. Requirements to be fulfilled before commencing to study dentistry.

7. Concerning examinations, examiners (4061), and assessors.

8. Complaints before the Board for breaches of discipline and the law for the guidance of the Board in taking action against the offender.

9. Clause exempting licensed physicians of the Province of Quebec from examination except in the subjects of operative and mechanical dentistry proper.

10. Licensed dentists have the exemptions and privileges of physicians.

BY-LAWS.

The preliminary examination :

BOARD OF EXAMINERS DENTAL ASSOCIATION OF THE PROVINCE OF QUEBEC.

PROGRAMME OF THE PRELIMINARY EXAMINATION FOR ENGLISH- SPEAKING CANDIDATES.

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NOTICE.—Candidates may take one Group at one examination and the other Group at the next subsequent examination. Failure in one subject nullifies the success in the whole Group, but failure in one Group does not nullify success in the other. In order to pass, the candidates must obtain sixty per cent. in Latin, English, French, and Arithmetic, and fifty per cent. in the other subjects.

The examinations are held at Montreal, on the first Wednesday in April and October. Applications to be made in person to the Secretary, accompanied with the receipt of the Treasurer for matriculation fee, at least ten days before the date of examination. Fee, \$20. Should the candidate be unsuccessful, one-half of the fee will be returned.

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DR. F. A. STEVENSON, *Treasurer.*

DR. W. J. KERR, *Registrar.*

This, as you will see, insures a good general education to begin with, if the candidate has not been simply crammed for the occasion. To those who are opposed to the dental law I would say that it is better to have no law than to have good laws badly enforced. Everything in the law of the Province depends upon the men who form the Board of Examiners. If they are men without moral strength and without the welfare of the profession at heart, every kind of abuse and evasion of the law may be practised unchecked, and they may levy blackmail to their heart's content on the offenders. On the other hand, I think that the only way to elevate the standard of the profession as a whole is to enact rules with which all must comply before being allowed to practise. This is no real hardship to any one. It is simply a method of enforcing a certain standard of proficiency on those who wish to earn their living as dentists. It protects the public and the dental profession from quacks,—men whose chief stock-in-trade is impudence and ignorance.

The great defect of the dental law, as we have had it in Canada, has been that it has tended to make the dentists of each Province into a close corporation, whose chief effort has been to prevent men from outside from obtaining a right to practise in the Province, and in this way the real object of the law was lost sight of,—viz., the elevation and advancement of dentistry as a science. A brighter day has dawned at last, and we are beginning to open our eyes to the importance of a thoroughly good theoretical and practical education for our dental students.

Whether we advocate dental laws or not, we should all of us be anxious to assist to our utmost whatever tends to raise the standard of scientific knowledge and skill in our chosen profession.

THE LESIONS OF SYPHILIS OF THE MOUTH.¹

BY GEORGE R. SOUTHWICK, M.D., BOSTON, MASS.

It is not the intention of the writer to enter into any detailed description of syphilis of the mouth, but rather to point out the more common manifestations of the disease which suggest precautions against self-infection or the conveyance of the disease to others.

¹ Read before the American Academy of Dental Science, March 1, 1899.

Syphilis is a disease infectious in any of its stages, more so in the primary and secondary forms, less so in the tertiary or hereditary manifestations, but always liable to infect at any time either by direct contact or indirect by some mediate agency. The mucous membrane is so thin and has so many microscopic openings that the syphilitic virus finds ready lodgement, which is rarely the case on the skin unless an abrasion is present. Syphilis may be acquired thus in an innocent manner. Taylor has observed that dentists contract the disease while operating in mouths the seat of mucous patches, and it is fair to add, under such circumstances the virus may be taken from one patient and inoculated on another unless great care is taken to clean and sterilize everything that has touched the patient or has been moistened by the secretions of the mouth. Syphilis is more commonly conveyed to the mouth or face by kissing, bites in quarrels, or, as happened in one case, where a young lady was playfully bitten on her chin by a syphilitic lover.

Sexual perversion, ritualistic circumcision, miscellaneous use of pipes, drinking-cups, razors, towels, eating and glass-blowing utensils, have been responsible for conveying the contagion of syphilis. Mucous membrane is modified skin, and the lesions of it appear about the same time as those of the skin and with a like clinical history, modified by its tonical variations, motion, and moisture. Syphilis is characterized by its reappearance in different forms called stages,—*i.e.*, primary, secondary, and tertiary, all of which are hereditary. These stages, however, are not to be considered as running a definite period of time, but are so irregular as to be rather periods of certain manifestations of the disease. In a general way it may be said that the early forms of syphilis are superficial and disappear without destroying the tissues or leaving tell-tale scars behind them. The lesions which occur late are deep-seated, long-lasting, and are likely to produce extensive ulceration and destruction of tissue with corresponding scars and deformity. White scars or patches in the mouth, about the palate, and on or behind the tonsils should suggest the presence of syphilis, though ulceration may not be present. The primary sore or chancre is less common in the mouth in the secondary lesions. The lip is often the seat of sclerosis, the opposite lip not being affected. The angle of the mouth may be involved, but not so constantly as in the secondary stage. The centre of the ulcer is somewhat depressed, the edges raised, and the base indurated in proportion to the duration of the ulcer. Such a sore disappears without leaving a scar.

Chancres on the tonsil are more common in women than in men. They are accompanied by extensive inflammation and swelling of the adjacent parts, and present the usual local appearance of a chancre. It might be mistaken for a follicular tonsillitis except for the enlargement of neighboring lymphatics, the sharply defined patch with an enormous amount of swelling and induration, and the comparatively healthy condition of the opposite side. The chancre on the skin about the mouth has the usual round form, with indurated base and a swollen hard margin surrounded by an inflamed area; these sores occurring in the hairy parts or where there are many sebaceous glands are apt to be very large and destructive. The cutaneous lesions of the secondary stage are often accompanied and preceded by lesions of the mouth. One of the earliest and most constant manifestations, as well as a very characteristic one, is erythema of the mucous membrane. It seldom produces primarily a lesion, but when it recurs a papule may form. The characteristic type of the erythema of syphilis of the mouth is a livid, diffuse redness of the mucous membrane over the tonsils, sides of the throat, and especially extending as a livid streak down over the arches of the palate. The color may fade from this type into a deeper blush than normal of the mucosa, and be more diffused about the pharynx and palate, where it may bear some resemblance to the pharyngitis of excessive smokers. The papular lesion of the mucous membrane is one of the most characteristic lesions of syphilis, if not the most important. It is known as the mucous patch. It is very infectious and a common source of contagion. It may occur on any exposed mucous membrane. The places of election are the corners of the mouth, the tonsils, and the tip or margin of the tongue. The posterior wall of the pharynx is seldom affected. The typical lesion is a round oval spot, variable in size, with a grayish-white centre slightly raised, and not unlike the color of mucous membrane touched with the nitrate of silver. The border of the ulcer is sharply defined, and the base is infiltrated and indurated. The infiltrated tissue easily breaks down, a characteristic feature of syphilis, which is seen especially in the gummata. This leads to another tell-tale sign of syphilis at the corners of the mouth. The motion of the mouth causes a breaking down of the infiltrated parts of the ulcer, which spreads out in fan-shaped fissures. The result of healing is a scar with radiating lines at the angle of the mouth, almost a sure sign of syphilis. These mucous patches may be seen in the primary stage, and then are superficial and heal without

leaving a trace behind them, but are apt to recur in the secondary stage. They are usually single, may be multiple, heal without destruction of tissue, and in themselves are not painful, but cracks or fissures in them in the angle of the mouth or on the tonsils allowing foreign bodies to lodge in them are very painful. The use of tobacco, alcohol, or anything irritating the mucous membrane of the mouth favors the growth of these patches. This is especially seen in the irritation of sharp, irregular teeth against the tongue and cheeks. The base of an ulcer on the tonsil is so uniformly gray as to suggest a diphtheritic deposit, but in diphtheria the patient is manifestly sick, and there is less enlargement of the lymphatics. If in any doubt, take a culture or watch the case for a couple of days. Diphtheria progresses rapidly and the papule slow in comparison. The tongue more than any other part of the mouth shows the lesions of syphilis in all stages. The middle posterior position of the tongue is sometimes affected in the secondary stage by excessive growth of the normal papillæ as were described by Hutchinson as mucous warts, practically condylomata. Smokers and drinkers and those with sharp, irregular teeth are especially apt to suffer with ulceration of the tongue. The papilla becomes prominent in spots, the epithelium exfoliates, and ulcers form, especially on those places subject to irritation; larger areas may be affected with glistening, slightly infiltrated sores, with the formation of superficial cracks. Sometimes round, flat, dense masses form which project a little above the surface, with here and there a papilla elevated and whitish in appearance.

It is well to remember that white scaly patches on the tongue, or buccal mucous membrane, are very apt to mean syphilis. The gums are not so often attacked by papules as other portions of the mouth. They may swell, become infiltrated, and the teeth loosen if the gums ulcerate about them. Gummata are the chief manifestations of tertiary syphilis. They form in soft fibrous or bony tissues. They are nodular masses from the size of a pin to that of a chestnut, ulcerate very easily, and rapidly form deep, ragged, putrid ulcers, which, with large scars, cause much deformity, and in the tongue seriously interfere with its use. The tongue is apt to be the seat of gummata, which give it a lumpy appearance in addition to its hypertrophy. The tongue may also undergo a diffuse hypertrophy without ulceration. The lips, gums, and cheeks are not often the seat of gummata. The lips are the most frequently involved of these, and the gumma is then apt to be seated on the

inner surface of the lips, along the attachment of the jaw. The roof of the mouth, particularly at the junction of the hard and soft palate, is a favorite seat for gummata. They ulcerate very rapidly, destroy the periosteum, and necrosis of the bones follows, with perforation into the nasal cavity and extensive loss of substance. This process may be so rapid as to cause perforation in twenty-four hours, and demands prompt recognition and energetic treatment to arrest the destruction of tissue.

Gummata on the posterior wall of the pharynx are rarely primary, and usually secondary to disease in the nares or the isthmus of the pharynx. The ulceration is exceeding rapid and has disastrous results, destroying the palate and replacing it by scar tissue. The large scars seen in the mouth and pharynx are usually the result of the healing of ulcerated gummata. The lesions of syphilis of the nose and larynx are similar to those of the mouth, with the addition that in the nose a chronic coryza with a very fluid discharge is a suggestion of syphilis, particularly in children, and the ulceration of the gumma produces an exceedingly offensive odor. Syphilis of the larynx interferes with the normal action of the larynx, and the voice has a metallic sound which is diagnostic to the ear of a trained observer. The laryngoscope readily shows the mucous patches or an ulcerating gumma, which is most frequently on the epiglottis or sides of the larynx. The secretions in the mouth are infectious in either nasal or laryngeal syphilis, when mucous patches or ulcers are present. Hereditary syphilis about the mouth most often attacks the bony structure. The teeth are commonly affected, and great importance was attached to the condition of the teeth by Hutchinson, who described the condition which has been termed the Hutchinson teeth. The first teeth are lost early, either from inflammation of the tooth-sacs and exfoliation of the crowns, or, as Hutchinson says, the neck of the tooth has been destroyed by caries and the crown breaks off. The permanent central incisors are regarded as the test-teeth for inherited syphilis. The type of such an inheritance is characterized by narrowing of the cutting edge, the tooth having a peg-like shape with a single crescent-like notch or upward curve across the cutting edge of the tooth. The teeth are rounded, dwarfed, and have an interspace so they do not touch. These teeth are characteristic of inherited syphilis, but precisely the same conditions are found sometimes in the non-syphilitic, and the sign is of positive value only when other confirming signs of syphilis are present. Caries of the alveolar processes, or of the

body of the superior maxillary in children, is very apt to be due to hereditary syphilis. It sometimes simulates closely disease in the antrum. Such cases may show a whitish cloud in the cornea, the result of inflammation, or an irregular pupil which does not dilate promptly or evenly, the sequence of a syphilitic iritis. Not every sore on the mouth or in it is syphilis, but every one with a grayish indurated base and a sharply defined border will furnish a good reason for personal precaution, such as wearing rubber cots on the fingers, and the careful sterilization of instruments. Cold sores and herpes labialis are distinguished by their vesicular appearance at first, followed by scabbing, and are situated on the cutaneous rather than on the mucous surface. Epithelial cancer may bear so close a resemblance to a syphilitic ulcer that the unaided eye cannot distinguish the difference. The pain is greater, and enlargement of the glands at the angle of the jaw is more constant and more pronounced in syphilis. The epithelioma is more common between forty and fifty years of age, and in smokers. It usually has a dry, brown or black scab on the surface, covering in the beginning a warty-looking spot, or later an irregular ulcer with sharply defined borders and a red base. Specific treatment for syphilis will soon clear up the diagnosis, or, if haste is urgent, the microscope will decide the question.

It is noteworthy that leucoplacia of the tongue and the scars following the healing of gummata are often the seat of cancer in later life. I have seen one case of ulceration on the alveolar process, just back of the last molar in the lower jaw, which showed some resemblance to syphilis and had apparently some connection with a very large amalgam filling. The ulcer was two-thirds the size of a penny, with a white, excavated base. The gentleman was an excessive smoker and had been treated ineffectually by some of the best specialists in Boston. He said the original filling had been removed and replaced by gutta-percha. He improved under my care, but was not cured. Specific treatment did not benefit him, though the ulcer bore a little resemblance to some of the forms of syphilis of the mouth I have seen. Cancer was excluded by the history of the case. He had some trouble with the soft filling, and called on another dentist, who found the original filling had been capped only with gutta-percha. He removed all the amalgam from an exceedingly large cavity and filled again with gutta-percha. The ulcer healed in about ten days and my patient had no more trouble.

A PROPER FOOD STANDARD IN ITS RELATION TO THE TEETH.¹

BY GEORGE R. GRAY, D.D.S., D.M.D., WORCESTER, MASS.

ONE of the most important subjects from the stand-point of the dentist must of necessity be, What is the best article of nourishment that can be used to help give added strength to that part of our system in which we are most interested?

From the few investigations that have been made in the public schools of our country, the alarming fact is known to us that there is a most deplorable condition to be found in the mouths of the little ones. As we know that this is partly due to the neglect of these important organs, still the fact remains that it cannot be wholly due to this, for if we examine into the habits of the children, we are sure to find that the food they eat is in a great measure composed of that which by no stretch of the imagination can be called *nourishing*.

Our business is mainly that of a restorer and repairer of dental organs, but if we are to be entirely honest to ourselves and patients, our duty cannot end at that point. We have been handicapped in our efforts by the social problems surrounding us, and have not given as much time to dietary reform as we should have done. We must find a preventive, and this can only come through perfect physical development of the entire body, and it is along this line that we must concentrate our efforts.

We develop and subsist solely upon such substances as are taken into the body by way of the mouth as foods. With this fact clear, it is plain that such foods must contain, in certain proportions, the exact chemical elements of which our bodies are composed, or perfect development will not take place. There is no question but that, taken as a nation, we are a candy-eating and prepared-food-consuming people, and this to a great extent is the cause of our poorly constructed teeth. The question might be asked, why we of to-day, comfortably clothed, well fed, apparently should have fallen so from the high standard of our grandparents? The scientist would say that we are starved, and he would be correct, for with food plenty and of the best, we throw away all that which makes muscle, bone, sinew, teeth, hair, etc., and in the barrel of snow-white best family

¹ Read before the Harvard Odontological Society, March 30, 1899.

flour they retain only the starchy elements that supply the body with heat, the carbonates.

Natural foods make possible natural conditions and build the harmonious body.

Our forefathers, whose food consisted mainly of coarsely ground grains and unbolted flour, were men of wonderful strength of fibre, intellectual, virile, and aggressive. Their families were large, and their descendants rapidly peopled the land. With their store-houses running over with grain, they introduced the bolting-cloth and used for their own food fine white flour from the heart of the grain. All the rest, the bone- and sinew-producing part, which could not be so finely ground and which gave the dark color, was thrown to the animals. Nature followed her unvarying law and took her revenge. For those who would not eat the bone-building gluten she refused to supply bone-material, and as a natural result a full sound set of teeth became a thing almost unknown, and the frail, half-nourished apologies for teeth gave out in early youth.

That which most nearly furnishes in the correct proportions all the properties to nourish all the elements of the body is wheat that comes to the miller from the fields. Unfortunately, wheat as it is usually presented to us in the form of bread, biscuits, cake, etc., is, in the effort to produce the æsthetic effect of whiteness, robbed of its nitrates or phosphates, in which reside the bone- and muscle-producing elements, while there is left only the carbonates or heat- and fat-producers.

As there are fifteen elements entering into the composition of the body, it follows that perfect development can only be had in presence of all these elements in sufficient quantity, and as the framework is largely composed of lime phosphates, it is evident that these must be supplied in the food, and yet as a people we eat largely of that unnatural product, white flour, which contains no lime, while the entire wheat kernel does contain all the fifteen elements of which the body is composed and in about the same proportions, and for this reason it may be called the natural food for man. We may as well build a house out of poor materials, poorly put together, and expect it to endure, as to expect the human structure to be what it was intended if it is built of improper food. If we eat improper food we must suffer; there is no escape. The unfortunate condition of our people to-day is a direct result of our present civilization, and as improper food is the foundation and main cause of human ills, it is plainly seen how poorly we of this land of abun-

dance of good things are supplied with proper food. Bread, the so-called "staff of life," is usually made of white commercial flour, and the other food products made therefrom, such as rolls, buns, waffles, pan-cakes, pies, etc., are the chief cause of the physical weakness and nervous disorders of our people. In the light of the present it is little less than criminal to give a child food made of such flour, especially when at the same meal many other starchy foods are supplied, such as rice, potatoes, corn-starch pudding, etc.

A certain per cent. of what we eat should be heat-making food, another per cent. muscle-making, and another per cent. to make hair, teeth, nerves, etc. If any of these are not provided for, there must be a wasting of tissues, which is but another name for consumption. Under these conditions the system cannot successfully combat disease; on the contrary, it invites it. The panacea of all this trouble is found in nature in the form of the wheat berry, which should be given to us in as nearly a natural condition as possible. The present milling process leaves a product (mainly starch) which is so dead that the American people yearly pay millions of dollars to buy yeast, baking powders, soda, etc., for lightening, and lard, butter, and other greasy substances to shorten and revive this disorganized substance into shape to tickle the palate; and then, to counteract the evil effect of this unnatural food, other millions are spent for medicines. There is no violation of nature's plain requirements so senseless and so damaging as to separate the natural allied properties of the whole wheat. The excessive use of white flour products, together with other starchy foods, is doing and has done more harm to the people than any other agency ever has or ever can do. If children have this kind of food largely, the natural result will be weak nerves, rickety bones, weak muscles, and poor teeth, good candidates for physical failures.

We must have something to change this tendency, and the first essential is to select proper food products. These are such as are organized during the process of their growth. They are natural foods. Nature made them for a food, and organized the material accordingly. Disorganized mixtures are merely attempts at improving on nature's method and they are unnatural foods. Whole wheat is the original basis. There are other naturally organized foods, but whole wheat is the standard. Whole wheat is the natural food product; it grows from the seed, and in the process of growth it extracts in a naturally organized state from the earth and air the properties which when properly cooked make bread both light and

short without any foreign aid, as well as to thoroughly nourish every element of the body. There are, of course, other grain foods, many of great dietetic value, but none other so perfect.

The history of all ages and all countries proves that the best-developed men or women were those who lived during the early periods in the development of the countries when naturally organized food was the diet of the people, and that with the progress of time and a supposedly superior dietary came the weaknesses and ills which are so prevalent to-day.

In the mechanical process of making into shreds none of the original elements are lost, and no foreign substance enters into it. It retains all the original constituents of the wheat berry, is simply whole wheat, all wheat, and nothing but wheat. It is a standard food put up in convenient form. Nothing has ever been produced like it. It needs no shortening, yeast, or other chemicals. It can be used with other naturally organized foods for every meal of the day, and while it supplies all the elements of the body under normal conditions, its proportions may be readily changed to suit such altered conditions.

Reports of Society Meetings.

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A REGULAR meeting of the Institute was held on Tuesday evening, May 2, 1899, at the office of Dr. J. Adams Bishop, No. 30 West Forty-eighth Street, the President, Dr. E. A. Bogue, in the chair.

The minutes of the last meeting were read and approved.

The Secretary presented a letter from Dr. W. H. Trueman, associate member from Philadelphia, stating that he had recently devised a new and practical method of making seamless gold crowns, and that he had mailed to the President of the Institute samples of this work together with a paper of instructions.

COMMUNICATIONS ON THEORY AND PRACTICE.

Dr. Karl C. Smith.—I have only a few words to say regarding a simple and very effective method of wedging teeth. It is a method which I have never seen described in dental literature, and, so far as I am aware, is not in common use in the profession.

The materials required are very simple,—namely, heavy linen or carpet thread of various sizes. A size is selected which will with difficulty pass between the teeth to be wedged; grasping the string at both ends, it is pulled down between the teeth until it passes the shoulders. The ends are then brought together and a knot tied at the side, thus pulling the cord against the shoulders and preventing it slipping down on the gum and causing irritation. I find this method is effective, and obviates a great deal of soreness, patients not complaining at all of the wedge.

Dr. H. G. Marshall.—This method is very similar to one which I have been using with success for several years, the only difference being that I use a silk thread and, in conjunction with it, a shred of cotton. I apply the silk in the manner which Dr. Smith has described, and before tying the knot pack between the teeth a few fibres of cotton. By knotting the loop of silk around this cotton fibre it is prevented from slipping down on the gum, and at the same time the cotton is so held in place that its expansion is more effective in separating the teeth between which it is applied.

The size of the cavity between the teeth must be taken into account and enough cotton applied to fill this. Care should be taken not to apply too much cotton. I have often separated teeth in this manner in twenty-four hours and without soreness.

Dr. S. E. Davenport.—If it had been my good fortune to devise the method of wedging of which I had expected to speak, I should be tempted to keep my seat after hearing the ground so thoroughly covered by Drs. Karl Smith and Marshall, but in justice to the gentleman who, so far as I know, first used it, I beg to be allowed to devote a few moments to the subject. This is usually spoken of as “the fish-line method,” and I have supposed that the line was Chinese grass line, but our President informs me that it is in all probability silk.

Dr. Isaac B. Davenport, of Paris, France, nearly ten years ago noticed in the mouth of a patient, who had just landed from one of the steamers from Boston, a wedge consisting of a doubled silk tied in a manner similar to that described by Dr. Marshall, with cotton between. It instantly occurred to Dr. Davenport that fish-line, which he was then using for regulating purposes, would be very valuable also for wedging, and after experimenting with different sizes, he came to the conclusion that it was better to use the line without the cotton. The method is especially applicable to those cases where the teeth are snugly in contact at the masticating

surface with a V-shaped space at the gum, and where it is almost impossible to apply tape, wood, or rubber wedges without having them slip down against the gum. To apply the fish-line a piece of doubled waxed floss silk should be passed between the teeth, leaving the loop sticking out either on one side or the other. Into this loop the fish-line, of the size decided upon, is threaded and drawn through. The two ends of the line are then tied with a square knot a little to one side of the masticating surface. Applied in this manner, there is no danger of the wedge working down to the gum, the knuckles of the teeth preventing.

While sufficient space for filling may often be gained in twelve hours with but little soreness, one line will continue swelling for two or three days, where extensive wedging is needed. The method has been of greatest service in my hands for many reasons, the most important of which is that the gum is not encroached upon, inflammation of the gum being, in my opinion, the principal cause of soreness in wedging. My experience in regulating teaches me that the teeth can be moved for a considerable distance without much soreness, provided the gum is not injured.

The possibilities of this method are very great, both for wedging and regulating teeth. I have, on various occasions, expanded arches by this method without using a plate, simply by placing these wedges between the teeth, although I believe that extensive expansion can better be accomplished in other ways.

One great advantage of this material over tape or cotton used in wedging is that it is twisted so tightly that it does not become offensive when left in the mouth for many days. The principal objection to the fish-line method is that the materials best adapted for this purpose are very difficult to obtain in the United States. I have found that the line obtained here does not seem to swell as much as that purchased in Paris.

I would say, in conclusion, that teeth with broad approximating surfaces in contact nearly to the gum are not favorable for wedging in this manner, as, in order to place the line in position, it is necessary to encroach upon the gum. For teeth of this character I think the use of tape would be preferable.

Dr. C. B. Parker.—It is possible to obtain this grass line of Messrs. Abby & Imbey, of this city, dealers in sporting goods. I have been obtaining a very satisfactory material from them for six or seven years.

Dr. F. Milton Smith.—I have been using for several years Dr.

Marshall's method, and wish to offer one or two suggestions about applying the silk. It is frequently found almost impossible to get the floss silk through by bringing it up from below. For a long time it has been my practice in these cases to take a very fine cambric needle, No. 9, draw the temper, bend it, and thread it with a fine silk, and to the silk attach the line or whatever is to be used in wedging. This needle is passed between the teeth from above next the gum, and the line drawn through in this manner. Again, instead of using a line of large size, I generally use a small size, making it into a chain stitch.

Dr. Marshall.—I think Dr. Smith's suggestion regarding the cambric needle a very good one. It is a method which I have been using, in a modified form, for some time. I take a No. 9 needle and grind off the head to about the middle of the eye, leaving a little pitchfork. I also find this very useful in carrying dressings into a canal.

SPECIAL TOPIC.

Discussion of Dr. F. Milton Smith's paper, read before the Institute last November and published in the March number of the *INTERNATIONAL DENTAL JOURNAL*, on the subject of the immediate filling of the roots of pulpless teeth:

Dr. F. Milton Smith.—When I read my little paper last November and finished about ten o'clock, with no time for discussion, I began to congratulate myself that my paper would be left to that condition described by one of our ex-Presidents as one of innocuous desuetude.

I will briefly call attention to some of the principal points of the paper which I would like discussed, and will read from the reprint, on the ninth page:

"In summing up, we would say that we regard as essential to success in root treatment, first, the rubber dam; second, free direct access; third, thorough cleansing mechanically and antiseptically; fourth, getting the antiseptic through the root; fifth, perfectly filling the root, immediately upon getting an aseptic condition, with an antiseptic root-filling; sixth, sufficient confidence in the method used to insure thorough work, and the minutest attention to details.

"Given these conditions, we believe that any careful operator who treats and fills roots at once will succeed far beyond the one who keeps his roots under prolonged treatment. . . . We have a theory that to very carefully open a root and remove two-thirds

of the canal contents after bacteria have been awakened in the other third and beyond the root, is to invite the trouble we seek to avoid. On the other hand, we believe that where we have just opened the tooth, and set forces at work which are bent on its destruction, we ought at once, if possible, to get our antiseptic not only in the root, but also as much farther as the mischievous effects have gone. After we have done this, and before more micro-organisms have come to life, we ought to forestall them by filling the root so thoroughly with an antiseptic material that there will be no home in which they may abide."

I believe this fairly covers the claims which I made as to the desirability of filling roots at the first sitting.

Dr. C. O. Kimball.—I think Dr. Smith has a paper by Dr. Stockwell, a synopsis of which he is going to give us.

Dr. Smith.—In November Dr. Howe kindly called my attention to the fact that Dr. C. T. Stockwell, of Springfield, Mass., was the first to advocate the immediate disinfection and filling of root-canals. I wrote to Dr. Stockwell, suggesting that I had never read his paper, and would be very glad to hear from him on the subject. I received a very delightful letter enclosing the original manuscript of a paper read by him before the New York State Society in May, 1887. As the paper is quite long, I have made a synopsis, which Dr. Stockwell has read and endorses.

SUMMARY OF PAPER READ BY DR. C. T. STOCKWELL.

My treatment of devitalized teeth, with or without fistulous openings, is based upon the theory that we have practically only a single agent to deal with,—namely, sepsis. In cases of acute pericementitis, I consider micro-organisms and the material favorable to their proliferation as the fact of first importance, and in proportion as I succeed in eliminating them lies my hope of relief. For this purpose I find peroxide of hydrogen an admirable agent, as this not only dissolves but throws out of the canal much of the disturbing matter.

In cases of so-called blind abscesses (while some have contended that we are not warranted in filling the root until we have a reasonable certainty that the abscess is destroyed and the process of repair has begun, hence a long time must intervene before filling) I feel that we are warranted in filling the root whenever the proper conditions are obtained, even though it may take but a few minutes to secure them. The same holds in acute cases: first remove the

putrescible matter and destroy the septic agents, then nature will take care of the case if the entrance is closed so that more septic influence may not enter.

It has been suggested that the cleansing of pyogenic tissues and the application directly to them of antiseptic medicaments is of itself no assurance that the suppuration will not continue, and we are not justified in proceeding as if it had actually been arrested and repair begun.

I wish to state most emphatically that I do not experience the trouble here apprehended, although I do proceed on just that assumption. The peroxide of hydrogen having eliminated the troublesome matter from the pulp-canal and the tubuli, also reaching and cleansing the pyogenic tissues, the root being filled with a non-irritant and powerful antiseptic material, the subsequent deposit at the apex of the root of amœboid cells or inflammatory exudates would not by any means necessarily be the source of further offence to the surrounding tissues.

If the condition we are called upon to treat is due to organisms or spores that have found entrance, it seems reasonable to suppose that if they are eliminated nature will repair the tissues by readily organizing the amœboid cells into normal tissue. The inflammatory exudate will take care of itself if the pyogenic fungi are excluded.

Professor Black states that the production of pus is an act of pyogenic fungi which takes advantage of a definite form of opportunity. I am convinced that peroxide of hydrogen, bichloride of mercury, iodoform, and eucalyptol not only destroy organisms of fermentation and putrefaction, but also pyogenic fungi. I therefore feel that after using the first two there is a great advantage in combining the latter in the root-filling.

After treating hundreds of cases by a method adopted two years since, with no failures, I am ready dogmatically to assert that a very large majority may as well be treated and filled at a single sitting. I consider the non-action of peroxide of hydrogen as almost a sure indication that the root may safely be filled.

Briefly I will state my method. First, remove all *débris* as thoroughly as possible, repeatedly inject peroxide of hydrogen, waiting each time till bubbling ceases, then absorbing it and applying more until not a single bubble appears; if a fistula exists get the remedy through it. Next, dry the cavity thoroughly and flood canals with bichloride of mercury 1 to 1000; after a few moments

remove the surplus and thoroughly bathe with Sander & Sons' eucalyptol, making that the vehicle for a considerable quantity of iodoform. I then dip fine points of gutta-percha into a solution of eucalyptol and iodoform and fill the roots with them. I consider it very important to get Sander & Sons' preparation of eucalyptol. I do not use carbolic acid, and believe that, owing to its coagulating effects, it materially limits the usefulness of the other remedies.

I have letters from dentists who have treated teeth for the past year giving detailed accounts of their work, in which all agree that the method is a success in their hands. I attribute the good results, first, to the cleansing action of peroxide of hydrogen, and, secondly, to the strong and persistent antiseptic properties of the root-filling. Were I to leave the iodoform and eucalyptol out of the filling, I should not expect to succeed as I do.

Dr. Marshall.—Some years ago I had the good fortune to have my office in the same house with Dr. Smith. During this time a patient came to me by recommendation, with a left superior lateral incisor badly abscessed, without a fistulous opening, and a history of having been treated by a prominent dentist for over three months without success, the abscess being just as bad as at the beginning, discharging pus through the canal at every treatment. Dr. Smith had often talked with me about his method of immediate filling but, as I was rather sceptical, I carefully treated this tooth and left a dressing of carbolic acid in the canal. The next day she returned with the face and gums badly swollen, and the dressing had to come out. I talked the matter over with Dr. Smith, and as a result I treated the case after his method and immediately filled the canal. Two weeks hence she had had no trouble, and I then filled the tooth with gold.

Some years ago a lady came to my office with an upper central incisor which had an abscess with a fistula, and which had been discharging pus for many years. At that time I cleansed it thoroughly, pumping several antiseptic solutions through it and removing a quantity of pus. The next day she came back and insisted that the tooth be immediately filled, saying that she would not submit to treatment, as it made her mouth sore. I washed it out as thoroughly as I could with carbolic acid, and filled it with oxychloride of zinc. The abscess healed and never returned.

Dr. D. A. Fuller.—I have been very much interested in Dr. Smith's paper, although I was not at the November meeting. If one-half of what Dr. Smith says is true, I think we will all soon be

following in his footsteps. There occurs to me, however, one or two objections. In a case, for instance, of acute pericementitis, the patient often comes for immediate relief, and while it might be possible to devote fifteen or twenty minutes to the case at that time, it would not be convenient to devote the time necessary for the thorough treatment and filling as advocated by Dr. Smith. Again, the length of time required—from an hour and a half to two hours—might prove wearisome to patients in this condition.

In regard to Dr. Stockwell's paper, I would say about peroxide of hydrogen, that I think I should go rather carefully with this agent if there was much of an opening at the apex. I can speak from personal experience, as I have had it tried on myself. I do not think I ever suffered a couple of moments of quite such severe agony as when the peroxide was applied to one of my teeth then under treatment. In my hands oil of cinnamon and wood creosote have proved rather better than carbolic acid.

Dr. J. G. Palmer.—I do not like to deliberately contradict Dr. Smith, the essayist, but it seems to me that there are some discrepancies in his statements which cannot be overlooked. On the fourth page of the reprint he states, that in order to feel absolutely safe it is necessary that a fine broach be passed through the apical foramen, "for then we feel quite confident that our remedy will reach the proper place." Again he states that "there are many canals which it is impossible to enter with the finest broach, and which we do not fill except as we can force a little of our solution into them." My inference then is, that there are some teeth which he would fill at the first sitting without going through the apical foramen. I think there are some other things to be taken into consideration besides the condition of the tooth itself and its immediate surroundings. We should carefully take into account the health of the patient. It is good practice and it has been my custom to fill the roots of pulpless teeth at one and the same sitting in cases where I have thought the health of the patient permitted it. But this treatment of a tooth with exactly the same local surroundings and conditions, but where the general health of the patient was poor, might result unsatisfactorily.

Again, I do not think the majority of our patients would care to submit to the "from one to four days' soreness" which Dr. Smith admits is quite likely to follow his method, sometimes even swelling of the face. It seems to me in his paper that he has not discriminated sufficiently between the cases which he would fill immedi-

ately and those which he would not, and this method in the hands of a younger practitioner might result disastrously.

I think I can illustrate my idea by a case which I treated recently. A boy twelve years of age, when nine years old fell upon the ice, breaking off his two superior central incisors. The roots were treated and filled, apparently successfully until six months later, when fistulæ formed over both roots. Without removing the fillings the dentist who had the case in charge treated these teeth for three years through the fistulæ. Finally one fistula closed entirely, while the other, the left one, remained persistent. Later there appeared in the roof of the mouth a large swelling over the root of the right central, which finally discharged and disappeared.

When the child came into my hands the fistula on the gum existed, but the swelling in the roof of the mouth had entirely disappeared and there was no soreness. I removed the fillings from the roots and dressed the canals with carbolic acid and oil of cloves. Some time within a week the swelling appeared again, but did not discharge. I removed the dressings and syringed with the three per cent. medicinal pyrozone, forcing it up into the tissues. It caused a little pain at the time, but in twenty-four hours the swelling had entirely disappeared. I cannot help but feel that if I had in this case followed Dr. Smith's method, and filled the roots after treatment at the first sitting, the result would have been a swollen face, and I should have had to remove the fillings. I cannot see how I would have been any more successful than the man who first filled the canals, as the gutta-percha fillings which I removed were apparently perfect. My experience with Dr. Smith's method in my first case was so unsatisfactory that I have been inclined to be a little cautious. The case was that of a young dental student, who presented a superior first bicuspid which was discharging considerable pus through a fistula. The tooth was filled immediately. Within the next twenty-four hours his eye was nearly closed, and before I could get the dressing removed the student had the tooth extracted.

I should also like to have Dr. Smith draw the line as to how sore a tooth must be "to be too sore to operate upon." Recently, in the case of a brother dentist, a left superior second molar presented having in each canal a very large foramen. The tooth was somewhat tender to occlusion, and even the suction caused by withdrawing the dressing caused pain. Treatment by carbolic acid and filling at the third sitting was followed by no soreness. I am con-

fidant that if this case had been treated by Dr. Smith's method, it would at least have been one of the cases which would have been followed by considerable soreness. The patient is a very busy man, and coming to me at the close of a long day of arduous work, I felt that much time and care were needed because of the depressed condition, hence did not fill immediately.

Dr. C. C. Linton.—I have been practising this method of immediate root-filling almost exclusively about as long as Dr. Smith, and with excellent success. I counted up at one time, and found that I had not averaged a loss of one tooth in a hundred by this method. My treatment is about the same as Dr. Smith's, except that I use hydronaphthol in the solution instead of iodoform. I find this method also excellent in the treatment of children's temporary teeth, having recently treated and filled the four lower temporary molars at two sittings. I had a patient last week who had been suffering two or three weeks with an upper wisdom-tooth. I removed the dead pulp, treated and filled immediately, without adjusting the rubber dam, as the tooth was so broken down. The treatment was successful, and there has been no pain since.

Dr. W. St. George Elliott.—It is a great many years since we first commenced to hear of the advantages and the disadvantages of the immediate filling of the roots of teeth. Everybody has had a large amount of success and no one any failures. Ninety-nine per cent. of successes is very common. Our president knows very well of the German dentist who does not take the trouble to put on the rubber dam, does not trouble to remove *débris* from the canals, simply places in the canals a little of Witzel's paste, which is composed of thymol, oxide of zinc, and alum, and he can show ninety-five per cent. of successes. I think the whole thing depends upon the ability of the dentist to properly diagnose his patient, whether it is a proper case for immediate root-filling or not.

I am somewhat familiar with the methods of immediate root-filling, and have practised them. I had a case not long ago which I treated most thoroughly. I drilled it and Donaldsoned it; I used peroxide of hydrogen, oil of cassia, oil of cinnamon, hydronaphthol, and, finally, as the tooth seemed in perfect condition, I filled the roots with oxychloride of zinc, yet I was not at all surprised when I had to take the filling out and resume treatment. The patient was not in the proper condition, as I learned afterwards.

Dr. C. G. Pease.—In filling root-canals I am also guided by the conditions of general health of the patient. I have cured abscess

at one sitting. I remember one case in particular, where, after evacuating a large amount of pus, I pumped in the peroxide of hydrogen and filled the canals immediately. Two years afterwards I saw the patient, and there had been no further trouble. I should like to ask what success has been had with the different makes of peroxide of hydrogen. I sometimes find it to be very poor.

Dr. T. W. Onderdonk.—The only solution I use in the way of peroxide of hydrogen is that prepared by the Oakland Chemical Company. I find it permanent, and with it I get excellent results. Regarding the immediate filling of roots, in my own practice I do not see the desirability of it, especially where we are seeing our patients every week, except in cases of fistulæ, where I always fill at once after a thorough disinfection.

Dr. C. O. Kimball.—I have a word to say on one point, and I will relate my experience in a case which it seems to me will be of interest. It is apropos of carbolic acid. I had under treatment some years ago an abscessed lower first molar tooth. The patient, who had been abroad for some time, returned with this state of things. For some reason or other this tooth resisted all my efforts to heal the abscess. I treated it with carbolic acid and with wood creosote without success. I made sure that I was getting in a sufficient supply of the drug. I had the tooth smelling very strongly of creosote, still the abscess kept discharging. At last I noticed that the irritation seemed to be the greatest immediately after making the application. It then occurred to me that perhaps we had all the antiseptic effect from the creosote that we could hope for, and that we were now getting an irritating effect which we did not want. I therefore washed it out very carefully with water and then with alcohol, and after drying the canal I treated it with carbolic acid, only five per cent. There was no reaction from this, and within a week the tooth was in an entirely different condition.

Since that time I have very seldom used pure carbolic acid in the treatment of teeth. I think we get quite as satisfactory antiseptic results with the weaker solutions; one that can be placed in the mouth without an eschar, and consequently one which does not cause irritation of the tissues.

Regarding Dr. Smith's method of treatment, it seems to me that while there are probably many cases where the immediate filling would be indicated, there are many other cases where it would not do at all. In those cases which come to us when the tooth is very sore and tender, with an active state of inflammation existing, I

would not dare to follow this method. The first indications, it seems to me, would be to relieve the inflammation and get the tooth in a quiet state, keeping it closed and sterilized meantime.

There is another point to which I would like to call your attention, which has been useful in my practice. I make it a rule to measure the length of roots of each dead tooth in thirty-seconds of an inch, and record the measure upon my chart, so that in subsequent treatments I know exactly how far it is safe to go. I also use marked instruments, so that there is no possibility of irritating the tissues beyond the apex. A very simple way of marking an instrument is to touch it with a stick of hot shellac, forming a tiny bead, being careful not to heat the instrument enough to draw the temper. This bead catches the eye and enables me to tell just how far my instrument has passed into the canal.

As to the method of filling roots, it seems to me that the plan of using semifluid substances which are very easily forced into the tissues beyond the apex is defective; the oxychloride of zinc, for instance, which makes a very satisfactory canal filling in every other respect. For this reason it has seemed to me wiser to close up the apex by a substance which shall be permanent and prevent the filling from passing through the foramen. To accomplish this I carefully mark the length of the canal, and, using an instrument that is cut squarely across the end, carry a little bit of gutta-percha or gold to the apex.

A very good way to sharpen an instrument on the end in this manner is to pass it through a pore in a hickory block which has been cut squarely across the grain, and then grind off on a stone. Under a magnifying glass this shows a sharp clean edge all round.

My habit is to use the gold at the apex with oxychloride of zinc. By this method of measuring instruments the work can be made quite positive.

Dr. E. S. Robinson.—In the treatment of root-canals I generally use campho-phénique. It has great antiseptic properties and very little irritating effects, and I find it very successful. I generally stop the apical foramen with a pellet of gold.

Dr. Pease.—I think it is generally assumed that every case is not a proper one for immediate filling. I do not think that even Dr. Smith will claim that this can be done in every case. I have been using the method for three years, and I can say that I have had no failures, but by that I do not mean that I have filled in this manner every tooth which has come under my care to be filled, and

I believe it has only been by a judgment in the selection of cases that has brought about this success. I think we must expect some soreness in the treatment of canals in every case, and immediate filling is generally followed by soreness, although not very severe. Where the pain and soreness is so severe that it cannot be tolerated, I find nothing better than cold applications in the mouth. I start with luke-warm water, allowing a piece of ice to dissolve in it until the patient can no longer tolerate it. Of course, there are some cases where heat is indicated. This pain, once relieved in this manner, will not recur again.

Dr. L. C. Leroy.—In the case mentioned by Dr. Palmer of the two central incisors, it seems that that is a case where judgment should be used. Dr. Palmer may never expect to cure that class of cases. The apical end of the root was probably never perfectly formed through interrupted development, and I do not think, in those conditions, we can expect a permanent cure.

There will probably be subsequent recurrence. I should certainly expect trouble in a case of this kind, and would tell the patient so, and why. Again, in cases where we are not able to get the canals perfectly dry we cannot expect success. We must always, if possible, get to the end of a root with our pulp-canal filling. It has been stated that in some instances we do not and cannot get to the end of the pulp-canals. Such a filling is defective, and must be entered upon our ledgers and on the charts as an imperfect operation. Surgeons in any other branch of the healing art recognize that certain conditions may present in their work which are practically insurmountable and preclude denominating that particular case as a perfect operation. Just so with root-canal fillings. The unfilled portion acts as a closed sac. Serous exudate, with the pyogenic white blood-corpuscle, will occupy the territory. There may be no evidence of defect for some time, but some day when that patient's physical tone is low, there will be a lameness about that tooth.

Dr. Davenport.—Dr. F. Milton Smith will pardon me if I say that in some things besides the filling of root-canals he is also an extremist, but as between the extremes of filling roots at the first sitting and continuing the treatment over a long period of time, give me the method which has been so ably championed by Dr. Smith. It is by the efforts of such men that all professions make their progress.

There is, however, great danger from the use of these extreme

methods in the hands of a considerable proportion of operators. Of course, Dr. Smith, with his careful and accurate ways, is successful in nearly all cases, and I have no doubt he uses the same judgment and discrimination which several gentlemen have mentioned as being so necessary to success, but there are many men who would not be successful, if for no other reason than this inability to discriminate between favorable and unfavorable cases.

The other extreme from Dr. Smith's method is the one used by many men who will carefully open into a tooth with a putrescent pulp, merely making a drill-hole into which they will pass a pellet of cotton with an antiseptic, carrying the cleansing process a little farther with each sitting.

My plan has been a middle course, removing all the *débris*, if possible, at the first sitting, rendering the canal mechanically clean. I then wash with warm water and dry thoroughly with absolute alcohol and hot air, which is one of the best remedies and one which I depend upon more than any drug at such times. I have often said that the majority of cases which come to me for treatment I would be willing to undertake without drugs, supposing, of course, that there is no fistulous opening. When there is a fistula I force pure carbolic acid through, if possible, and the medicament I usually prefer when there is no fistula is a five-per-cent. solution of formalin. After this thorough first treatment I stop tightly with gutta-percha, and if, as is usually the case, no trouble has resulted, I fill the roots at the second sitting with chloro-percha and gutta-percha points.

The President.—I have learned a great many things this evening. Still there are a number of things which have not been mentioned, and as Dr. Smith is to take the stand in answer to questions, I trust he will clear up some obscure points for us. He has not yet told us what teeth he is referring to, or their conditions. Patients come to us with pulps exposed: they come with pulps all gone, but with no soreness until they are opened into: they come with what we call blind abscess and quite sore: they come with every variety of abscess. After which of these conditions are we to fill immediately? These questions have come up so many times that I am desirous that Dr. Smith should answer them to our satisfaction and instruction.

The instruction which Dr. Smith gives, and with which I heartily agree, is that the roots should be thoroughly cleansed. Dr. Kimball sounded a note of warning which I think it is well to look

into; it is the placing of a pellet of gutta-percha or gold at the apex of the root, but Dr. Kimball did not tell us whether this applies to the six front teeth or all the teeth.

Regarding antiseptics, I find formaldehyde very acceptable. Some gentleman spoke of the use of oil of cinnamon, but I would suggest that he should not use the oil of cinnamon in the front teeth, as it will discolor them.

Dr. J. Morgan Howe.—The immediate filling of these roots that have not contained putrescent pulps is a procedure to which no dentist, I suppose, will object. Neither will any disapproval be offered to the immediate filling of roots that have had putrescent pulps in them, after they have been disinfected, provided the vital tissues beyond the apex are so near to a physiological condition as not to need either restorative treatment or a rest.

But the question raised by the procedures Dr. Smith calls a "positive method" is on the desirability or propriety of filling a putrescent root-canal after such disinfection as may be accomplished in one sitting.

Dr. Stockwell, of Springfield, was, I believe, the author of this method, and I think he has stated that his first operation of the kind was performed for a patient who could give but the one time for it, and was under the necessity of immediate departure for distant parts. His testimony and that of our essayist, as well as of others, are amply sufficient to establish the fact that teeth do endure such treatment well, and that the results have been regarded by them as successful. But I wish to direct the attention of practitioners and advocates of this practice to the proofs of success offered by the advocates of filling roots with cotton saturated with some antiseptic,—a practice which Dr. Smith appears to condemn,—and to point out also that it often appears quite successful to leave roots entirely undisturbed, or to treat with some so-called mummifying paste, after the death of the pulp, when many such teeth remain for years without causing irritation. These methods are perhaps just as positive as that we are specially considering, but neither of them afford any ground for claiming absoluteness or certainty of results. I think no method, in so far as it affects the living periapical tissues, can be regarded as positive or absolute in freedom from risk of producing irritation.

My reason for recently reporting the unfavorable result of opening into a putrescent root-canal—to which Dr. Smith has done me the honor to refer—was that it was so remarkable and unusual to

have any irritation whatever follow treatment with the precautions mentioned, and to have suppuration occur in so little time. I do not think it possible to remove the putrid matter from the apical third of most root-canals without great risk of forcing some of the infectious matter through the foramen. The results of such infection, if it happens, must always vary with the virulence of the toxins, the relative antiseptic qualities of the blood, and the vital resistance of the tissues of different patients. Of these, of course, we can know but little in advance. I regard the statement of Dr. Starr as an important admission, which other advocates of immediate root-filling have not heretofore made, I believe. His statement to patients, that they are liable to have trouble for a few days if the roots are filled at once, is in accordance with what would seem to be an inevitable consequence of possible infection of living tissues beyond the apex.

I should think the liability of such infection much greater when attempts are made to remove all the putrid matter from the root at once than if the most remote part of it was first rendered innocuous by disinfection. If we suppose the living apical tissues to be inoculated with a portion of the root contents, a pathological disturbance will not certainly be averted by the use of antiseptics, nor will the chance of its modification by treatment be so good if access to the irritable tissues is prevented by a filling in the root-canal. The recognition of unfavorable results following very active efforts to cleanse putrid root-canals has been so general among careful practitioners that the caution against it, and advice to disinfect first, has been quite common.

Our fellow-member, Dr. Shaffner, of Florence, is the most recent one to offer a caution in this direction. This he has done in a paper read before the American Dental Society of Europe, on "Some Hints on the Manipulation of Pulp-Canal Probes."

While I am very ready to admit that a good proportion of putrescent root-canals may be treated and filled immediately without creating disturbance in the tissues beyond, I do not think it is nearly so free from risk of producing such irritation as the method which is followed by those who seek to render the putrid matter in the finer portion of the canal innocuous before attempting to remove it, taking more time to disinfect later. In regard to thorough disinfection of putrescent roots, there can be no doubt that repeated dressing of canals with disinfectants is required to disinfect dentine thoroughly.

Dr. Black has shown that over twenty-five per cent. of the dentinal tissue is organic matter, and that nearly eleven per cent. is water. When such a proportion of the dentine as this is putrescent matter, it is safe to say that the application of a disinfectant to the openings of the tubuli during one sitting will of necessity be insufficient to affect their contents to much depth. Stopping in the disinfectant and repetition of its application are required to permit the interchange and reformation of molecules that should occur throughout the length of the tubuli, before the canal can be considered in the most favorable condition to receive a filling.

Dr. Smith.—I have been more than delighted with the discussion this evening, and if the gentlemen were not already tired out I should be very glad to speak at some length on the subject, as I have enough material to last me for some time. Dr. Fuller spoke of acute cases which are extremely sore. On the fourth page of the reprint, lines four and five, I say that we fill these roots at the first sitting, provided the tooth is not too sore to work upon. If the tooth is very sore I do not torture the patient, simply open the tooth and leave it.

Regarding Dr. Kimball's suggestion that he would close such a tooth, let me say that I invariably leave it open until I see the patient again. I do not leave these cases to another sitting because I fear to treat the tooth at the time, but because of the pain incident to the mechanical work at the time of operating.

Dr. Fuller speaks of the peroxide giving pain. Dr. Stockwell claims that pain rarely follows the use of a reliable preparation.

I am pleased with Dr. Palmer's discussion, but sorry to learn that he has fallen from grace. I had supposed that he was converted two or three years ago. He states that I consider it essential to go through the foramen. I will quote from my paper: "Reference has been made to Dr. Flagg's caution not to go through the foramen. Regarding this we would say that we never feel absolutely safe unless we have gone through with a fine broach, for then we feel quite confident that our remedy will reach the proper place."

The fact has been lost sight of in the discussion that at no time have I stated that in every case would I fill immediately. As much is implied in the notice on your invitation, "It is almost invariably good practice to fill the roots of pulpless teeth," etc. Almost invariably does not mean in every case. It is not those gentlemen who fill teeth at one or two sittings that I am trying to help; it is

those who are dressing and treating teeth time after time. I do not believe this is necessary.

The case mentioned by Dr. Palmer of the boy nine years of age may have been one of the exceptions, although I am very much inclined to think that I should have thoroughly cleansed and filled immediately. Regarding the swelling in the roof of the mouth, I think it should have been lanced. I lance all such cases. The reprint says, "We regard as essential to success sufficient confidence in the method to insure thorough work." Unless a man has confidence he will fail; that is, he will remove his filling when the patient comes back with a little pain or soreness.

In severe cases connected with the eye it has been thought good practice to inject a little pus into the eye to get up an active inflammation, and thus carry off the disturbance, and even gonorrhœal pus has been used. I think the irritation which we get with carbolic acid acts in a similar way. The suggestion has been made that the condition of the patient should be taken into consideration, and there are certain conditions without question where immediate root-filling is contraindicated, but these general conditions are not very prevalent. Dr. Elliott suggests that perhaps the claim of ninety-five per cent. of successes is not well founded. I have not claimed any percentage of success. All that I say is, I do not believe in the last ten years, where I have gotten to the end of the root and filled thoroughly, that I have lost three cases, and I do not believe that my failures go elsewhere.

Dr. Onderdonk suggests that the method is not necessary where the patient is coming every week. Confidentially, from a financial point, the method is not so successful. When I spend two hours over a patient and end by filling with gutta-percha, the patient is generally disappointed with the charge, exclaiming with surprise that Dr. So-and-so "treated my tooth for three months and did not charge me half so much."

Regarding the questions of the president, we are dealing, as I understand, with pulpless teeth, and I see no reason why teeth with exposed pulps or teeth with pulps partially devitalized should be brought into consideration here. In the cases with which the paper deals, I should fill immediately if I believed that I had gotten an aseptic condition.

Dr. Kimball suggests that he fills the ends of the roots with gold. Now I think it would be as reasonable for me to ask Dr. Kimball if he fills every minute root with gold as for some of the

questions which have been asked to-night concerning passing a broach through the end of the root. Of course, he fills those teeth with gold at the apex which he can fill.

Regarding Dr. Howe's suggestion in reference to roots enduring in considerable numbers the treatment laid down. He is willing to admit this, but claims that the practice of filling roots with cotton saturated with an antiseptic, or even of leaving some roots entirely unfilled, may just as fairly be called a positive practice.

As to the cotton root-filling class. If they have confidence in their treatment, and have a method whereby they can pack the cotton sufficiently tight to make a thorough and permanent antiseptic root-filling, and do it with the expectation of having success in almost every case, we should consider their method a positive one. If, however, they use the cotton simply because they have no confidence with their treatment, expecting to remove it every time the patient comes in complaining of soreness, we should consider it anything but positive treatment. The practice of leaving roots unfilled we should consider nearly as positive as cotton put in after the latter plan.

Dr. Howe claims that none of these methods afford ground for absoluteness or certainty of results. We had supposed the paper would clearly set forth our idea that by a positive method we meant, not that in every case we succeed, but in every case we undertake the treatment with the expectation of success. This we think is more nearly a positive method than that vacillating one which is constantly expecting failure.

Dr. Howe also refers to Dr. Starr as being the first of the advocates of immediate root-treatment to suggest that patients are liable to have trouble for a few days. By reference to the paper of the evening of November 1, it will be seen that the essayist calls attention to the fact that patients are almost invariably warned that trouble of more or less severe nature is likely to ensue after treatment. In one of the cases cited the patient had some disturbance for several days. Regarding this I would say that I have never known a surgeon of any repute to refuse to use what he considers the best method of operating because his patient might suffer some temporary pain after the operation. In the aggregate we believe that our patients do not suffer anything like as much pain as when we employed the repeated dressing method, while we save more teeth and many hours of time to our patients and to ourselves.

Again, Dr. Howe says that the recognition of unfavorable results following very active efforts to cleanse putrid pulp-canals has been so general among careful practitioners that the caution against it and advice to disinfect first have been quite common. That the best and most careful operators do have much trouble with these cases we are willing to admit; in fact, we made this statement in the paper, nor have we anywhere intimated that we have no pain attending our treatment.

We are most careful to do thorough work. We do get up in many cases apical inflammation, just as Dr. Howe and the other disciples of continuous or repeated dressings do, but with this difference: we have confidence that the thorough work done, after the irritation subsides, will leave a useful tooth thoroughly filled to the end of the root and not likely to give subsequent trouble.

Dr. Howe goes with us as to the careful thorough work, also as to getting up the irritation, but there we part company. He does not have the confidence to say to his patient that the irritation is a necessary accompaniment to the treatment and will soon disappear, but removes his dressing, sometimes getting immediate relief and sometimes not. When he does get it, he has an open pulp-canal which is, as we believe, very quickly filled with germs of the same nature as those he effectually destroyed, which it would appear to us is coming back to the starting-point with no better chance of success the second time than the first.

We think that the fact of iodoform being incorporated in the root-filling may have a more beneficial effect in the way of combating septic influence than is generally supposed. This is in accordance with Dr. Stockwell's suggestion as we understood his remarks. So far as we know, Dr. A. J. Reinhold, in the *Independent Practitioner* for August, 1884, was the first to suggest this combination with chloro-percha.

I thank you very much, gentlemen. I still have faith in immediate root-filling, and shall continue in the practice of this method, because with it I have had success, and it is exactly the method I should wish practised upon myself under the same conditions.

It was moved and carried that a vote of thanks be extended to Dr. Smith for his excellent presentation of the subject.

Adjourned.

FRED. L. BOGUE, M.D., D.D.S.,
Editor The New York Institute of Stomatology.

AMERICAN ACADEMY OF DENTAL SCIENCE.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Wednesday evening, March 1, 1899, at six o'clock.

A paper was read by George R. Southwick, M.D., of Boston, entitled "The Lesions of Syphilis of the Mouth."

(For Dr. Southwick's paper, see page 576.)

DISCUSSION.

Dr. Eames.—I wish to express my thanks to the essayist for responding to my request to present this subject, because I think it is an extremely important one. These extensive sores on the face, which are exposed to view, are not necessarily those which will lead us into trouble, because they are unsightly and we are put on our guard at once. The large lesions are warnings in themselves to us, but many times more important, it seems to me, are those cases of syphilis the lesions of which are not exposed to view, but are hidden behind the soft palate or in the nose; and from these sores the saliva in any part of the mouth may become infected, and thus convey the virus just as truly as if the lesions were in sight. The only safe practice, therefore, is to be always on guard, not wounding the mucous membrane; and protecting any raw surface on our hands, and using great care in sterilizing our instruments.

Dr. Potter.—That point I would like to ask Dr. Southwick about,—the point that has just been referred to in regard to the infection by saliva, where there are no lesions in the mouth. I was under the impression that if there were no secreting lesions, the saliva of itself was not infectious.

Dr. Southwick.—I should not like to express a positive opinion, but if I should happen to have a hang-nail I would be very careful about putting my fingers into the mouth of a patient where I had any reason to suspect syphilis. There might be a lesion of the mucous membrane somewhere, although not in sight; there might be an ulcer on the pharynx, in the larynx, or in the posterior nares, and under these circumstances the saliva becomes at once infectious. Could we be absolutely sure that all syphilitic lesions were excluded from the mouth, nose, and throat, I should say that it was doubtful if the saliva would be infectious.

Dr. Werner.—Would the saliva of a person that had evidently had syphilis and was apparently cured still be infectious? I have in mind a young man, perhaps twenty-eight or thirty, whose teeth look like those of an old man. There are evidences of old scars on the mucous membrane where it joins the necks of the teeth, and the mark of an old fissure running up between the incisors, but he is better, and as he expressed it, "I am a new man."

Dr. Southwick.—One should be very careful in operating on such a person, because such a patient might have a hidden lesion of the mucous membrane and be infectious. If we could be absolutely sure that there was no lesion about the mouth or adjacent parts, then the infection can be reasonably excluded. We know that the seminal fluid of a syphilitic man does not infect the woman. She will be likely to get it by contact with some lesion, but the mere deposit of the seminal fluid on the mucous membrane does not infect; so if the semen will not do it, I should hardly expect that the saliva alone would infect. Syphilitic persons are apt to have lesions of some sort, even after they are considered to be cured, and if I had occasion to operate on a man whom I knew had had syphilis, I should be rather particular how I got that man's saliva on my hands. It is something which demands infinite care, for he might be all well to-day, and to-morrow there might be a papule which would cause lots of trouble to the operator.

A Member.—Do you think, then, that a person can never be said to be entirely cured of syphilis?

Dr. Southwick.—It is a serious question whether you can say that a person is completely cured of syphilis and will never have recurrence, and cannot transmit it to his children. It is claimed by the authorities that a person who has been carefully treated until all lesions have disappeared, and who shows no recurrence of secondary symptoms for a period of five years, can be said to be cured, but that is not always true. I can tell you of a case in my practice which will show you the tenacity of the disease even after it is pronounced cured. A certain lady contracted syphilis from her first husband, was treated for it by the best physicians, and declared to be cured. Some years after, a gentleman asked her to marry him. She told him all the facts of the case, and, as he was still anxious to marry her, they consulted some of the best authorities here and in New York. As it was a number of years more than five since there had been any manifestations, they all pro-

nounced her safe from recurrence, and told her that she was absolutely cured. She was married. Her first child was born about two years afterwards, was sickly, poorly nourished, and died in infancy. Another child was born about the fifth or sixth year of her marriage, and, although delicate, there were no positive signs of syphilis. A third child was born about the tenth year of her marriage, and that child showed unmistakable signs of syphilis. The case first came under my notice when called to treat this child for caries of the superior maxilla. The father assured me there was no infection. I curetted and curetted, but could not stop the disease. Finally I gave that youngster some iodide of potassium, and he got well. I then put some pretty straight questions to the parents, and they admitted the facts as I have given them to you, but had said nothing to me about it before, because they had been told that the disease was absolutely cured. The second husband had not had it. The patient had some nasal trouble, with considerable chronic coryza, which may or may not have been caused by syphilis, but it certainly shows the heredity of the disease, although it was in the neighborhood of twelve years from the time when she was pronounced cured by physicians who are considered to be authorities on the disease; so that, personally, I am rather sceptical regarding the absolute cure of syphilis. It is true, there are very many cases in which the disease does not return, but there is always a possibility that at some time of life it may manifest itself.

Dr. Potter.—I would like to ask, in regard to the enlargement of the glands, whether they are characteristically enlarged in syphilitic persons or not? I have always associated a round, shot-like feeling under the finger with syphilis.

Dr. Southwick.—There is a characteristic feeling to the glands about the genitals when the initial lesion has occurred there. You will find that the glands in the groins have a spindle-shape rather than the round shape, which is characteristic of the ordinary infection of the chaneroid poison, but I do not know of any particular type or form of glandular enlargement which occurs about the mouth and is in itself characteristic of syphilitic infection and not seen in other conditions.

Dr. Taft.—I would like to ask Dr. Southwick if in the illustrations he has shown us of ulcers in the mouth there were also ulcers in other parts of the body as well as the mouth, and whether he cured each individual ulcer with the inunction he spoke of?

Dr. Southwick.—Lesions of the mouth are usually accompanied

by cutaneous lesions which may be located on any portion of the body, and other signs of syphilis were present in many of the cases. If the mouth was the seat of the primary infection, we would not have cutaneous manifestations at the same time as the primary sore, but the symptoms of the other stages are liable to manifest themselves in any part of the body. The inunction is a general treatment of all the body, not a single ulcer, and cures all the manifestations of syphilis.

Dr. Bigelow.—I would like to ask the essayist if, in the case of a patient who was known to have had syphilis but supposed to be cured, and such a person coming to us for treatment, it would be possible to remove the possibility of infection by any local means, such as mouth-wash?

Dr. Southwick.—No; I think the greatest protection would be something which would prevent our coming in contact with the saliva, like thin rubber coats, gloves, such as are used in abdominal surgery, and are thin as tissue paper. Of course those cases are possibilities, but in such important matters we want to exclude every possible chance of infection. Even after I have discontinued the treatment of a syphilitic patient, I recommend them to take occasionally a little mercury or iodide of potassium; I do not mean excessive dosing, but perhaps a little now and then; that is, the patient will be less likely to have a recurrence by so doing. But I should be doubtful about depending upon a wash, for, as I said before, the lesion might be located in the posterior nares, and any gargle or wash would not be likely to reach the seat of infection.

Dr. Werner.—And if it did, would it be of any material benefit?

Dr. Southwick.—No; the disease is systemic; the sores are persistent and infectious. Cleansing could be only temporary.

Dr. Fillebrown.—It seems to me that the rubber dam, thoroughly applied, well adjusted, would be a pretty thorough protection to the operator, the patient, and everybody else.

Dr. Southwick.—Yes, after you have succeeded in adjusting it. If I were a dentist I should keep on hand a supply of rubber coats, which are as thin as tissue paper and can be drawn over the fingers, and thus prevent any possibility of infection.

Dr. Werner.—I would like to ask the essayist, without bringing up too much talk over the amalgam filling question, whether, in his opinion, he feels that tobacco is an irritant to these ulcers, and also whether he thinks that an amalgam filling would be more of an irritant than any other filling to syphilitic persons?

Dr. Southwick.—Tobacco is an irritant to a syphilitic ulcer. An amalgam filling should not irritate more than any other. It is purely a case of mechanical irritation, and does not depend on the components of the filling.

Dr. Fillebrown.—They might acquire it a second time.

Dr. Southwick.—A person who has had syphilis cannot become infected again.

Dr. Werner.—Not even by direct contact?

Dr. Southwick.—No, sir. Syphilis may recur after an apparent cure, but it is not due to reinfection.

Dr. Taft.—What did you mean, then, when you said that you treated a patient nine times for it?

Dr. Southwick.—It was simply one of those cases that was not cured; the disease recurred. It is very difficult to guarantee a cure.

Dr. Werner.—Would you expect any beneficial effect from it because it had mercury in it?

Dr. Southwick.—No, sir. There wouldn't be enough in it to be of any use.

President Cooke.—If the gentlemen have nothing further to say, I will ask Dr. Southwick if he cares to close the subject.

Dr. Southwick.—Some of the doctors apparently have not understood what was meant by the term "inunction" as applied in the treatment of syphilis. A simple gray ointment is made of equal parts of mercury and lanolin. In hospitals each patient is given about a drachm and a half at a time, and one syphilitic rubs the other; first, that amount is rubbed in both extremities below the knees; the next day the same amount is rubbed into the thighs; the following day the same amount is rubbed into the back of the body; the next day, into the forearms; and the next day the front part of the body; then the following day a hot bath is given, as hot as the patient can bear it. The day after that the inunction is repeated, going through the same routine. The usual course of treatment is fifteen or twenty inunctions, and in addition to this, chlorate of potassium, two and one-half drachms in a pint of water, is prescribed and used freely, as a gargle, several times a day, and the patient watched for any manifestations of drug action. That is the usual course of treatment after the appearance of the secondary manifestations, when we feel sure that we know what we have to deal with. In certain cases, in addition to this treatment, the iodide of potassium is given internally.

Dr. Werner.—I move that we pass the subject with a vote of thanks to the essayist.

Unanimously voted.

President Cooke.—Have the gentlemen any specimens to present?

Mr. Geo. T. Baker.—I want to call attention to a few experiments that I have been making in regard to rubber dam. I thought I would put some in water for the purpose of preserving it, and to keep it from drying. I found that after a few days it commenced to change color, getting lighter and lighter until finally it became almost white. So I took some different kinds of dam and put them in pure water and found that some of them changed while others did not. The bleached rubber seems to be of material advantage in reflecting the light into inaccessible cavities, approximal cavities, and with patients with small mouths; and on dark days in winter I find it makes quite a difference. It will bleach if left covered with water for about two weeks, and I found that I could bleach it in about fifteen minutes by boiling. I had some that came from the S. S. White Company and some from Hale's on School Street, but neither of those specimens bleached out. The specimens that I got from McDonald, from Bailey, on Boylston Street, and from the American Hard Rubber Company, New York, bleached out all right. Some specimens won't bleach out, apparently, either by boiling or remaining in water.

Dr. Stoddard.—Perhaps the reason was that some of the specimens may have been acid-cured.

Dr. Baker.—As near as I can make out, the acid-cured is the kind that bleaches, and the sulphur-cured does not.

Dr. Brackett.—It was suggested some years ago by Dr. Buckland, of Woonsocket, that the immersion of rubber in water was a means of preserving its elasticity, the idea being identical with that to which Dr. Baker has just referred, with the further recommendation, that after drying it should be closely rolled and protected from the air. I tried immersion in one or two instances, and I found that after an interval the rubber had become very much deteriorated and the water extremely foul. The water was probably not pure in the first place. The whole combination, rubber and water, was very bad, so that I gave up the experiment.

Dr. Taft.—There is one thing I have noticed about rubber dam when soaking or washing it. If I put a piece of it in the water of my Boston office, I find, after drying, that instead of the smooth,

velvety feeling it has when coming direct from the dealers, there is a wet and sticky feeling to it. But if I take a piece from the same roll and soak it in water in Cambridge, for example, where I live, I find, after drying, that its original smooth and velvety condition is restored; so that I attribute this to some peculiar condition of the water.

Dr. Eames.—I have experienced that same thing, but I have attributed it to the difference in the rubber, and not to the difference in the water, and I have removed the difficulty by simply using whiting or soapstone over the rubber to make it smooth.

Dr. Stevens.—I want to say just a word as a hint to the preserving of the rubber dam. The way in which I have kept mine is to roll it up, place it in a tin box, and put it in the safe, where it is cool and dark and away from the air, and I find it just as good in a year as it was the day I put it in. I have kept it that way for a good many years.

HARRY E. CUTTER, D.D.S.,
Editor American Academy of Dental Science.

NATIONAL DENTAL ASSOCIATION.¹

THE sessions of the Second Annual Meeting of the National Dental Association were held in the ball-room of the International Hotel, Niagara Falls, August 1 to 4, 1899.

The meeting was called to order at eleven A.M., Tuesday, August 1, by the President, Dr. H. J. Burkhart, of Batavia, N. Y.

After prayer by Rev. A. S. Bacon, of Niagara Falls, the President read his annual address, the Vice-President from the South, Dr. B. Holly Smith, occupying the chair. The President besought the interest of the Association in behalf of the International Dental Congress to be held in Paris in 1900; in the Army Medical Museum and Library, and in the compilation of a reliable history of the dental profession. He urged that measures be adopted to increase the membership roll of the Association. He said that the by-laws ought to be so amended that "any clean, honest, ethical dentist" may gain membership. Instead of a mere handful, there should be a membership of several thousand. The requirements

¹ Reported for the INTERNATIONAL DENTAL JOURNAL by Mrs. J. M. Walker.

at present are of such a restrictive character, and the method of electing so unsatisfactory and cumbersome, that there should be no hesitation in a radical departure from the method as presented in the constitution. The meetings of State societies are scattered throughout the whole year, and when the meeting of the National Association is at a distant interval little or no interest is felt in the election of delegates. The clause denying membership to those who without a degree have entered the profession since 1875, because there are very many who, though without a degree, are quite as well qualified as one who received his degree on the attainments required prior to 1875. Dr. Burkhart favored such revision of the constitution as would permit the election as delegates of members of any permanently organized dental societies working under the code of ethics of the National Association. He also favored the creation of an Executive Council, which shall dispose of all routine business; the sessions of the Council to be open to all members of the Association. He suggested the establishment of a scientific bureau under the auspices of the Association; recommended the correction of infirmity abuses by dental colleges; immediate measures to obtain the appointment of dentists in the army and navy, and the unification of State laws regulating the practice of dentistry. He favored a law making a license granted in one State "a passport for practice, not only on this continent, but all over the world."

On motion, the President's address was referred to a committee composed of Drs. Jas. McManus, Thos. P. Hinman, and L. P. Bethel.

Under the head of miscellaneous business, Dr. J. N. Crouse asked the privilege of the floor, and stated that news had just been received that the International Tooth Crown Company had won a suit against a New York dentist, a result which would disastrously affect every dentist in the United States unless reversal of the decision can be obtained. Dr. Crouse announced that, with the approbation of the Association, the attorney of the Dental Protective Association would be telegraphed for, and at a special meeting on Friday further explanation of the matter would be given.

The Secretary read a message of greeting from the American Dental Society of Europe, in session at Bruxelles, and introduced the delegates from that society,—Dr. Wm. Mitchell, of London, and Dr. L. C. Bryan, of Basel, Switzerland.

On motion of Dr. Patterson the courtesies of the floor were ex-

tended to these distinguished representatives of the dental profession in Europe.

The Committees on Code of Ethics and on the Journal asked further time.

The Committee on Revision of the Constitution, Dr. Thomas Fillebrown, chairman, reported the result of this work and asked an immediate vote on the portions referring to the creation and work of the Executive Council, laid over from the last annual meeting.

On motion of Dr. Hunt, the proposed amendments were ordered printed and distributed before final action is taken.

On motion of Dr. B. Holly Smith, discussion of the amended constitution was postponed until after the report of the Committee on the President's Address, as the recommendations of the President and the amendments formulated by the committees are largely in harmony, though this is a mere coincidence.

Dr. Charles McManus, chairman of the Committee on History, then read portions of a voluminous report.

On motion, the report was accepted and the committee continued, the chairman to supply the place of the lamented Dr. R. Finley Hunt, one of the most active workers on the committee, who died May 21, 1898, at the venerable age of eighty-one years.

The various officers of the Association then read their reports, that of the treasurer showing the receipt of annual dues to the amount of \$1247, with a balance on hand of \$881.03.

Dr. M. F. Finley, chairman, read the report of the Committee on Dentists in the Army and Navy. He said that it was better to have no legislation than that of political machinery, and that no expedient plan had yet been devised of attaining the desired object. The Surgeon-General is not opposed to the innovation, but he is not impressed with the importance of offering such inducements as would secure the most efficient men.

On motion, the report was accepted and referred to the Committee on the President's address.

On motion of Dr. Patterson, of the Executive Committee, a resolution was adopted rescinding the vote of censure of the New Jersey State Society, passed at the Omaha meeting. The resolution was signed by Drs. Patterson and Finley, of the Division on Credentials.

On motion, adjourned to 7.30 P.M.

(To be continued.)

Editorial.

NIAGARA FALLS, 1899.

THE anticipation of a large meeting of dentists has been always realized at Niagara, and the present year has proved no exception, for over four hundred gathered there to meet with the national and allied educational conventions.

To those who were in attendance for years at the old American Dental Association there is much that endears this spot to memory. It was here that the earlier and best work of this organization was accomplished, and it was here that many, whose voices are forever silenced, helped to lay broad the foundations for the dentistry of this period. The older members, therefore, return to it with feelings of historic reverence, and while they enjoy, in common with all others, the great charm of Falls, Rapids, and the bewildering Gorge, they also come to it with feelings others may not share,—feelings that unite the past with the present.

While the foregoing is true, the Niagara of the present year cannot be regarded as entirely satisfactory. Formerly the place was the quiet resort of travellers, and a few days there could be thoroughly enjoyed. This is all changed, for it has become the working place of conventions at this season of the year and the railroads pour excursionists into the city by thousands. The result is that the old time comfort has disappeared, and in its place wrangling over accommodations, supplemented with difficulties at the table. There appeared to be no attention paid to contracts for rooms by letters. In no case, so far as the writer's observation went, was the promise "of a comfortable room" lived up to, and confusion prevailed upon the arrival of every train. This constitutes the disagreeable side of Niagara as a place of meeting in August.

While the place of meeting next year is at this time unknown to the writer, he leaving before the close, it is evident that August is not the proper time of year for a meeting of this character. The argument has always been that dentists usually take August as a vacation month. While this is true of those in large cities, it is

not true of others, and a change to an early spring month is most desirable.

The National Dental Association had young blood at its head the present year, with the result that more papers and of better quality were presented than at any other meeting in the writer's memory. The conflict of interest with duty made impossible attendance upon all the sessions, as the meetings of the National Association of Dental Faculties interfered.

The middle West was represented by some of its strongest men, and while they presented views not in accord with recognized thoughts and observation, they were none the less acceptable, for they gave evidence of a breaking away from the shackles of authority, always refreshing, although they may not always be based on a reliable foundation.

The writer was not there long enough to learn of the final disposition of the surplusage of papers. It is equally unfortunate to have a superabundance in this direction as it is to have a paucity of material, for it is discouraging to workers not to be able to read their productions, and this may result, as upon previous occasions, in future weakness.

The outlook for the National Dental Association from the stand-point of this meeting is encouraging. Representatives from all portions of the United States and Canada were present. Dr. N. S. Jenkins, of Dresden, Germany, added much to the interest in presenting his porcelain inlay work, which has come to be regarded, by those familiar with it, as superior to other methods.

The action of the National Association of Dental Faculties last year, in suggesting the appointment of committees in various countries to work in connection with it, resulted in the visit of several gentlemen from different sections of Europe, thus giving almost an international character to this year's gathering.

It is to be hoped that the proceedings of the National will be issued at an earlier date than the volume of last year, they not appearing until nearly the time of the succeeding meeting.

Great credit is due all concerned for the success attained at the session of the National Association, and it is felt that, as far as the meetings were concerned, Niagara Falls will be remembered with satisfaction and its work be worthy of special remembrance.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE annual meeting of this body is always looked forward to by its members with great interest, and it is rare to find any college, however distant, but has its representative present. This was peculiarly true of the recent session held at Niagara. This convened on the morning of July 28 with a full attendance.

It was not anticipated that this meeting would result in any changes in the general order adopted last year, and, in view of this, a short session was anticipated. The results demonstrated that the unexpected happens, for this body did not reach a final adjournment until August 3, the longest period in its history.

This prolongation of the sessions was not due to any extraordinary amount of business, but to the necessity for frequent adjournments to allow committees to complete their work, and especially that of the Conference Committee appointed to meet with a similar committee appointed by the National Association of Dental Examiners.

The feeling in the Faculties at the opening of the first session was one of extreme bitterness towards the National Association of Examiners, and a disposition was manifested in the Faculties to defend the legal rights of the colleges to the last extremity. This feeling was evidently reflected upon the other National body, and resulted in an official request that a Committee of Conference be appointed. This was finally acceded to, and after repeated sessions of the joint committee an harmonious conclusion was reached and finally adopted by the two national organizations. This was not accomplished without considerable friction in both associations, resulting, on the part of the Examiners, in the withdrawal of the New Jersey State Board.

The conclusions arrived at places the National Association of Dental Examiners and the National Association of Dental Faculties upon the same educational basis. The former accepts the position of the latter and agrees, as far as lies in its power, to withdraw all suits now pending and, as far as possible, retract charges of disreputability made against several colleges. This conclusion of the two organizations was a most satisfactory solution of a difficult problem, and if no other good was accomplished by the meetings at Niagara this alone compensated for the expenditure of time, strength, and money, for it ends, for the time being, serious litiga-

tion that promised disastrous results to the cause of dental education. If now the States not represented in the National Association of Dental Examiners will adopt the same liberal policy, then may speedily come a solution of many vexed questions. If, however, they continue the old antagonistic methods there will be but one course for the colleges to pursue,—that of following the matter through to the highest courts. It is hoped wise counsels will prevail.

The necessity for a united body at this period in the history of dental education must be apparent to all observant minds. To accomplish this all methods and measures that tend to disintegration should be determinedly opposed and be regarded as a menace to the life of the organization. For the first time the political caucus was introduced at Omaha in the Association of Faculties, and this year this objectionable method was repeated at Niagara. This cannot go on without ending in the destruction of this organization. The universities and higher medical schools connected with it have sacrificed much in their efforts to strengthen the weaker schools, but there is a limit to this, and if the secret plans evidently adopted at the recent meeting are to be continued, the smaller schools may find themselves struggling unsupported in a maze of difficulties. The universities of this country are not in this work for office honors, and the future may not find them remaining in an association where the methods of the politician outrank, in importance, the work of the scholar. The true position is for all the schools to aim at a standard beyond criticism and by methods in which no flaw can be discovered.

THE AMERICAN DENTAL SOCIETY OF JAPAN.

THIS title reads strangely in view of the comparatively short time since Japan was opened to the civilization of the outside world, but it is an accomplished fact, as this body was organized in Tokio, Japan, on June 3, 1899, with its constitution and by-laws and a partial list of officers.

Our old friend and co-worker in dental education, Dr. Louis Ottofy, seems to have been the active spirit and has been made its first president.

The time will come, doubtless, when Japan will follow in the path of other civilizations, and bar out all American dentists, but

for the present the American Dental Society of Japan may be congratulated as the first organized effort to transplant American ideas of dentistry in the Orient.

THE BOSTON DENTAL COLLEGE.

THIS college, which has been the recipient of much uncalled-for criticism, founded mainly upon personal feeling, has united its interests with Tufts College, and it became, on July 1, the Dental Department of that college. The medical lectures will be given in the Tufts Medical School. It is the intention of the college authorities to erect, in the near future, a building for the use of the dental school.

The laws of Massachusetts make it impossible for any but medical schools to receive subjects for dissection. This very unjust discrimination against dental colleges has involved the Boston college in a difficulty, for the National Association of Dental Faculties has a rule requiring all colleges connected with it to have facilities for the study of anatomy by dissection.

This rule is gradually forcing all dental colleges to become part of either medical colleges or universities, and the day is not far distant when the independent dental school will have passed into history. This is simply a step in the direction of a final merging of the dental profession into that of the medical and the eventual obliteration of the D.D.S. as a distinct degree. This may not be an agreeable thought to some, but the indications all point in that direction. The present changes taking place are for the benefit of dentistry, but whether the final absorption will result in a higher degree of practical excellence is a question as yet unsolved.

EXPLANATION AND CORRECTION.

IN the August number of this journal appeared an editorial in which criticism was made as to the disposition of proceedings. In this criticism was included the oral section of the National Medical Association. The secretary of this organization, Dr. Eugene S. Talbot, writes that, "According to the law of the Association, all papers read before the section are property of the Association, and must be turned over to the Publication Committee as soon as they

are received by the secretary of the section. . . . I have never . . . in any way given any journal the preference in obtaining abstracts of papers."

We are glad of the opportunity of placing the oral section in a correct position. The idea has been entertained that there has been a preference. The main contention in the editorial in question was, that all associations, whether local, State, or national, should publish their own proceedings. This it seems the oral section of the National Medical Association does, and it should receive due credit therefore.

Notes and Comments.¹

THERAPEUTIC CONSERVATISM.—*Merck's Archives* says, editorially, that a certain degree of conservatism in our attitude towards innovations, whether in therapeutics or anything else, is essential to safety. This is quite true, but when the conservative instinct causes us to refuse to examine new things, and, even when tested by others and declared good, keeps us from trying them under any circumstances, it becomes a dangerous obstruction. Justice to himself, to his patients, and to the race demands of every physician or dentist that he constantly seek to employ the very best remedies known, so that he may reach the maximum of cures. Unless one keeps informed of the discoveries in his profession, he cannot expect to reach this mark.

MOULDINE is made, according to Dr. Chupein, in *Dental Office and Laboratory*, by incorporating glycerin with finely powdered Fuller's earth. The glycerin is added a little at a time while the earth is in a mortar, the incorporation being effected by grinding with a pestle. It should be made into a mass the consistency of putty. In winter it gets quite hard and stiff, but it may be brought to its proper working consistency by heating it and working in, while warmed, a little more glycerin.

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

TREATMENT OF CARBOLIC ACID POISONING.—The *Medical News* reports a case where a young boy of sixteen years had taken one and a half ounces of carbolic acid, the physician seeing him in thirty minutes from the time he swallowed it. He was in a limp and comatose state, the pulse being imperceptible. A pint of cream was at once poured into the stomach, which was kneaded in order to mix thoroughly the cream and the carbolic acid. Dry heat and friction were applied to the legs and arms. In two or three hours consciousness returned. The administration of cream and unskimmed milk was continued at short intervals for several hours. The patient entirely recovered in two days.

REMOVAL OF IODINE AND NITRATE OF SILVER STAINS.—Replying to inquiry for a method of removing the stain of iodine and nitrate of silver, we offer the following: To remove the stain of iodine from the skin or clothing the hyposulphite of soda acts very nicely; or it may be readily removed by the application of ammonia. If it happen to be on the lips of the patient, a weak solution should be used to bathe the spot. Nitrate of silver stain may be removed by first painting the spot with iodine, following the same with the application of ammonia.

TIME LIMIT IN PROFESSIONAL WORK.—In reference to reading and other allied work, practitioners of dentistry seem to be divided into two classes: First, those who read several journals, buy and read the new books, and otherwise take time to improve themselves and keep abreast with the advance of their profession. These are usually the busy men. The second class claim it is not worth while to subscribe to more than one or two journals, as they seldom get time to look them over, and sometimes do not even take the wrapper off; they seldom buy a book and "have not time" to attend dental meetings. These constitute too large a portion of our members, and we have but to look about us to see that they are not the busy men of the profession; that is, from the general acceptance of the term. The *Lancet-Clinic* very tritely says,—

"Two things are never realized by the man who hasn't time: one is that there are exactly sixty minutes in every hour, and the other is like it, in which he fails to understand in its true bearings

that there are neither more nor less than one hundred cents in every dollar. The busiest men attend the national, State, and local societies, and they are not disconcerted by pressing business engagements, a reason for which is found in the fact that they manage their business and do not allow their business to manage them."

IS THE ENAMEL A VITAL TISSUE?—Dr. R. R. Andrews, of Cambridge, with Drs. Williams, Black, and others, claims that after the enamel is once formed there is no organic matter in it, and that it has no vitality. Dr. Andrews, in writing upon the subject, says,—

"I believe that enamel, fully formed, is nothing more nor less than a coat of mail, supplied by nature to protect the dentine and subserve the processes of mastication, and I doubt if it be possible, in perfectly formed human enamel, to find so much as a trace of organic matter within the substance of the enamel itself, or at its surface. Near its junction with the dentine there are nearly always found slight prolongations of the organic tissue, from the dentine, within its substance, and those are numerous enough at this point to account for the one to three per cent. of organic matter found in enamel on analysis.

"The enamel is lifeless; there is absolutely no difference to be found by the microscope, in the appearance of the enamel of a live tooth, from that of a tooth that has been a long time dead."

Current News.

THE NATIONAL ASSOCIATION OF DENTAL FACULTIES AND THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

THE members of the dental profession will be glad to learn that the difference existing for some years between the National Association of Dental Faculties and the National Association of Dental Examiners have been reconciled. These differences have been the cause of much friction between the two bodies.

The cause of the trouble was the refusal of the colleges to ac-

cept, and the adherence of the latter body to, various rules which have been crystallized into what is known as Rule 8 of its Code of Rules, Sections 1 and 2.

The attempted enforcement of this rule recently led to litigation in the State of Wisconsin. The State Board of Dental Examiners of that State refused to admit to registration the diplomas of the Chicago College of Dental Surgery, the Northwestern University Dental School, the Pennsylvania College of Dental Surgery, the Ohio Medical University Dental Department, the Philadelphia Dental College, and others, on the ground that they did not, in their preliminary examination, come up to that standard established by Rule 8, and demanded that graduates of these institutions presenting diplomas for registration should submit to examination by the Board as to their qualifications to practise dentistry.

This contention of the Board was resisted by a graduate of the Chicago College of Dental Surgery, who brought mandamus proceedings to compel the Board to accept his diploma. The Board moved to quash the proceedings, which motion was denied by the court with leave to the Board to file its answer. This was filed, and the case was in that condition at the time of the meeting of the two Associations at Niagara Falls on the 28th of July, 1899.

With a view to the adjustment of the difficulty, committees of conference were appointed by the two bodies, which, after going over the matters in dispute, agreed, on the side of the National Association of Dental Examiners, to recommend that Rule 8 be rescinded and that all colleges having membership in the National Association of Dental Faculties be placed upon the list of recognized schools, and that all litigation be withdrawn; and, on the side of the National Association of Dental Faculties, that a new rule governing the preliminary requirements for admission to the college courses should be adopted.

This action was ratified by the Association. The Examiners' Association adopted a new Rule 8, Sections 1 and 2 of which read as below, the remainder of the rule being substantially as before:

"Sec. 1. Colleges desiring recommendation to the State Board by the National Association of Dental Examiners shall make application for such recommendation through the Committee on Colleges, on blanks provided for that purpose. This rule to apply only to schools making application to the National Association of Dental Examiners for recommendation and such schools as may be dropped.

"Sec. 2. The following preliminary examination shall be required of students seeking admission to colleges recommended by this Association. The minimum preliminary educational requirements of colleges of this Association for the session of 1900 and 1901 shall be a certificate of entrance into the second year of a high school or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction, as adopted by the Missouri State Board."

The Faculties Association adopted the following rule governing the preliminary educational requirements of students:

"The minimum preliminary educational requirements of colleges of this Association, for the session of 1900 and 1901 shall be a certificate of entrance into the second year of a high school, or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction.

"Nothing in this rule shall be construed to interfere with colleges of this Association that are able to maintain a higher standard of preliminary education."

The cause of friction being removed, the disputes which have arisen, there is every assurance, will be speedily adjusted and the two bodies will thereafter work in harmony.

NATIONAL DENTAL ASSOCIATION.

THE next annual meeting of the National Dental Association will be held at Old Point Comfort, Va., beginning June 26, 1900. The date was selected to accommodate the large number of dentists who expect to attend the International Dental Congress, Paris, later in the season.

The election of officers resulted as follows:

President, Dr. B. Holly Smith, Baltimore, Md.; Vice-President for the East, Dr. John I. Hart, New York; Vice-President for the West, Dr. T. W. Brophy, Chicago; Vice-President for the South, Dr. M. F. Finley, Washington, D. C.; Recording Secretary, Geo. H. Cushing, Burbank, Cal.; Corresponding Secretary, Emma Eames Chase, St. Louis, Mo.; Treasurer, Henry W. Morgan, Nashville, Tenn.

Executive Committee.—H. A. Smith, Cincinnati; J. D. Patterson, Kansas City, Mo.; T. S. Waters, Baltimore, Md.

Executive Council.—H. J. Burkhart, Batavia, N. Y.; T. Fil-lebrown, Boston, Mass.; I. S. Cassidy, Covington, Ky.; W. E. Griswold, Denver, Col.; I. Y. Crawford, Nashville, Tenn.

SOUTH DAKOTA STATE DENTAL SOCIETY.

THE Seventeenth Annual Meeting of the South Dakota State Dental Society was held in Yankton, June 7, 8, and 9, 1899. The subject of crown- and bridge-work was very ably presented in a paper, and later demonstrated, by Dr. Gasler, of Chicago.

The officers elected for the ensuing year were W. O. Robinson, of Parker, President; W. W. Price, of Centreville, Vice-President; C. L. Blunt, of Yankton, Secretary and Treasurer; C. W. Stuten-roth, of Watertown, Librarian.

Lead was selected as the place for the next meeting, and the time for holding the same was left to the Executive Committee.

C. L. BLUNT,
Secretary.

COLORADO STATE DENTAL ASSOCIATION.

AT the Thirteenth Annual Meeting of the Colorado State Dental Association, held in Denver, June 13, 14, and 15, 1899, the following officers were elected:

President, A. C. Watson, Denver; First Vice-President, J. N. Chipley, Pueblo; Second Vice-President, Mary A. Bradner, Denver; Corresponding Secretary, Florence S. Green, Denver; Recording Secretary, L. S. Gilbert, Denver; Treasurer, William Smedley, Denver.

FLORENCE S. GREEN,
Corresponding Secretary.

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Original Communications.¹

DENTAL LESIONS AND THEIR RELATION TO NASAL AND ACCESSORY CAVITIES.²

BY G. L. S. JAMESON, D.D.S., PHILADELPHIA.

OWING to the great progress that has been made in the science of medicine during the last decade, it is impossible for one to thoroughly master and practise every branch of this great science. More and more it is being realized that, in order to obtain the highest results, the individual must devote his efforts to some special part after he has acquired a general knowledge of the body as a whole, and in particular of the parts connected more or less directly with his chosen field of practice. Thus it is that certain specialists, other than stomatologists, should have a thorough knowledge of the dental organs, and the converse of this is equally true of the dentist, for frequently in dental lesions the systemic condition of the individual plays a most important part. It is a well-known clinical fact that certain diatheses, especially the gouty and rheumatic conditions, and those associated with various chronic lesions of the internal organs, as the kidney and liver, together with the pathological alterations of the blood, affect directly secreting

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read before the Academy of Stomatology, Philadelphia, April 25, 1899.

surfaces, and that there is frequently deposited on or in the tissues solid materials which act as irritants. The mucous membrane, which is a secreting surface, also aids in the elimination of such irritating substances. It is also true that there is a tendency for this material to be deposited about joints or bony articulations. Now, while the teeth in their relation to the alveolar process of the maxillæ are not exactly a joint or bony articulation, yet they are histologically identical, and at the junction of the tooth with the alveolar process such deposit may take place. Furthermore, in anæmic conditions, where generally faulty nutrition exists, the first part to suffer is that near the joints or articulations; for this reason,—that the higher the grade of tissue the greater is the demand for nutrition, and when nutrition fails, these high-grade structures are the first to suffer. Now, many lesions of the teeth are directly associated with and dependent upon such etiological factors. It is in these conditions that the dentist should have a thorough knowledge of general medicine.

The important relation that the two specialties—stomatology and rhinology—bear to each other is clearly demonstrated by the fact that the entire superior maxilla, both as to its formation and structure, is largely dependent upon and controlled by nasal lesions in early childhood. Any irregularity in breathing due to nasal obstructions in early life, while the facial bones are flexible and of partially cartilaginous union, controls the contour and facial expression. Any condition lessening nasal breathing, in addition to changing the facial expression, will also bring about irregularly formed accessory cavities, especially the antrum. Through failure of the proper amount of air to pass through the nostrils, the facial bones are pressed upon largely by the air in one direction only,—that is, from without. In order to supply the lungs with sufficient air the patient breathes, particularly during sleep, with the mouth open, subjecting the superior maxilla to air-pressure from the exterior, and to muscular pressure also, contracting the arch and producing marked irregularity of the teeth, as well as giving the characteristic droop to the nose. This is produced by the action of the muscles of the face. This muscular action also causes narrowing of the nasal orifice, and although the intranasal obstruction be removed later in life, this abnormally formed orifice will, acting as a valve on inspiration, close the nostril and interfere with nasal breathing, frequently causing in adult life confirmed mouth-breathing.

As in early childhood the teeth are influenced by nasal conditions, so in later life is the nose more or less affected by pathological conditions of the dental organs. Recent clinical observations by stomatologists, rhinologists, pathologists, aurists, and neurologists have clearly proved that many lesions of the head and face, the cause of which has been more or less obscure, have their origin in abnormal or pathological conditions of the dental organs, and at the present time many physicians are beginning to realize the important rôle played by the teeth, directly and indirectly, in producing lesions, especially the neuroses, and are acquiring a better knowledge of the too long neglected field of the stomatologist. Already several medical schools have established chairs on diseases of the teeth and oral cavities, and it would be well if all colleges conferring the degree of M.D. should follow their good example.

Of all the specialists of medicine next to the stomatologist, no one requires so thorough a knowledge of the dental organs as the rhinologist; since the teeth are by their position intimately related, directly and indirectly, with the nasal cavity. Before entering upon the diagnosis and treatment of pathological conditions of the teeth affecting the nose and accessory cavities, it would be in order to describe minutely the anatomy of the parts involved, but as so much has been done recently by members of our profession, you are referred to the writings of such men as Drs. Cryer, Garretson, and Marshall. For the best anatomical description of the parts considered in this article, you are referred to a paper read by Dr. M. H. Cryer before the American Dental Association, August 8, 1895, and published in the *Dental Cosmos* of January, 1896; and also to "Studies of Maxillary Bones," read by the same author before the Dental Society of the State of New York, May 11 and 12, 1898, and published in the *Dental Cosmos* of November, same year. These papers have been most favorably commented upon not only by the dental but by the medical profession for their excellent description of the bones and sinuses of the face individually and correlatively, and it is through such articles by stomatologists that the medical profession is awakening to the fact that an important part is played by the dental organs, when abnormal or in a pathological condition, in producing reflex neuroses, nasal and other lesions. Dr. Cryer in his original anatomical researches, by sections and cross-sections, has given the medical profession facts that heretofore have been largely speculative.

The abnormal and pathological conditions of the teeth super-

inducing or causing nasal obstructions and disturbances may be studied under the following divisions: (1) Teeth inverted and ir-rupting into the nasal cavity; (2) teeth whose roots are separated from the floor of the nasal or antral cavity by a thin lamina of bone, and which when affected by chronic pericementitis or phagedenic pericementitis, cause inflammation in the floor of the nose by contiguity of tissue. The pulp-chambers of such teeth when devitalized produce alveolar abscess, which breaks through the line of least resistance, and discharges into the nose or antrum. However, if the roots of the teeth are separated from the *antrum* by a thin lamina of bone or even penetrate the sinus, and are covered only by the muco-periosteum, should the teeth become infected, will cause in the antrum empyema. If no infection occurs, there will be evolved gas from tissue-decomposition, giving rise to emphysema or ozæna.

There are certain cases, not here classified, which come under the notice of the stomatologist and rhinologist, where one or more of the incisor teeth, which are separated by a thin lamina of bone from the floor of the nose, become affected with pericementitis, or phagedenic pericementitis. In several cases which have come under my notice it has been a peculiar fact that the tooth affected was the one in direct line with the nasal cavity, in which there was some obstruction close to the floor of the nose, and directly over the root of the diseased tooth. As to the theories as to why these particular teeth should be affected, the most plausible one is that the tooth extending close to the floor of the nose, the root pre-disposed, becomes inflamed from the collection of secretion and necessary irritation within the nasal cavity, possibly aggravated by some constitutional condition, such as a uric acid diathesis. This chronic inflammation affecting the root would unquestionably force down that tooth slightly, thus bringing the point more into prominence, and subjecting it to greater irritation. Now, if a pathological condition be present, such as uric acid diathesis with deposit, the tooth subjected to this irritation would be more likely to become diseased, which would explain the isolated cases of pericementitis or pyorrhœa alveolaris. Or, granting that there was no systemic condition, but the intranasal obstruction existed, and this obstruction was so located that the accumulation of secretion came directly over the root of the tooth, separated only by a thin lamina of bone, the inflammatory process is set up, causing prominence of that tooth, subjecting it again to more irritation from friction, there is formed at the root of the tooth, as a result of this chronic irritation, new

connective tissue, which, following the law of all new inflammatory connective tissue, must contract. This contraction in itself will keep up the pressure on the tooth equal to, if not greater than, the original inflammatory pressure. The constant strain on this tooth will bring about an inflammation, pericementitis, and, with infection following the line of least resistance, very soon a sinus will form and you will have that condition so commonly seen by the stomatologist. The following cases illustrate this condition.

CASE I.—Miss W., aged eighteen years. A young lady in the best of health. The teeth were in good condition and the gums healthy, except the left upper central, which was somewhat elongated and slightly separated from the lateral. There was no apparent cause for the condition of this tooth. The tooth continued to elongate, and in spite of all treatment developed into a decided case of phagedenic pericementitis, and the tooth will undoubtedly have to be extracted and possibly replanted. The patient has had nasal irritation for a number of years, particularly in the left nostril, and has had several operations. My attention was called to the condition of the septum, involving the base of the left nostril, by Dr. D. Braden Kyle, who suggested that a spur or redundancy on the septum, under which the secretions accumulated, was the irritating cause of the diseased condition of the tooth. The redundant tissue of the septum projected to almost the floor of the nose, permitting only the passing of a thin probe beneath. The secretions accumulated at this point and formed crusts. The entire nostril was inflamed. The alveolar process was very short and undoubtedly the root of the tooth was very near the floor of the nose. As every other tooth was free from any sign of pericemental irritation, it seems quite certain that the inflammation in the floor of the nose by contiguity of tissue was, as pointed out by Dr. Kyle, the exciting cause of phagedenic pericementitis.

CASE II.—Mr. G., aged thirty-five years. The teeth and gums were in fairly good condition. The right upper central was elongated and pushed forward. There was discharge of pus from the gums around the root. A probe could be passed to the apex of the root, showing the peridental membrane separated from about one-quarter circumference of the root.

The nerve was devitalized and pulp removed. The tooth was cut off at the gum-margin, and the natural crown, which had been removed, was ground to occupy a proper position and dowelled to the root. After two years the tooth is free from any discharge, and has

only slightly elongated since operation. As this was the only tooth affected with pyorrhœa, I had the patient's nose examined by a rhinologist, and a spur was found on the septum about one-eighth inch from the floor of the nose, directly over the affected tooth. The patient said that he had had for years more or less trouble and irritation of that nostril.

FIRST DIVISION.

Teeth inverted and irrupting into the Nasal Cavity.

CASE I. (Reported by Professor C. N. Peirce.)—Boy, aged eighteen years. Left superior central incisor missing, and in its place a prominence somewhat resembling a hard tumor. The gum was lanced and alveolus cut away, when the curved root of a tooth was exposed. With considerable difficulty the tooth was extracted by means of forceps, grasping the hooked or curved root presenting. On removal of the tooth an opening was left communicating with the floor of the nose. In this case no particular inconvenience had been given the patient, and only the prominence over the place of central incisor led to interference. In order for this tooth to irrupt into the nose, crown presenting, the dental germ must have been rotated 180 degrees.

CASE II. (Reported by Zuckerkandl.)—It has been observed that incisor teeth sometimes develop in the floor of the nose, their crowns pushing up into the anterior part of the nasal fossa. This anomaly is only possible by supposing a rotation of 180 degrees of the dental germ. The enamel, instead of growing downward, directs itself towards the nasal fossa. In this instance the tooth is lengthened and penetrates the nasal fossa. Salter, quoted by Sternberg, has seen a dental germ completely inverted in such a manner that the crown was in place of the root. These inverted teeth were always superior incisors, according to Salter. One could see the crown in the nostrils, from which one is obliged to extract the tooth.

CASE III.—Roy, of the Sooree Charitable Hospital, India, reports a case of a Hindoo boy, aged fourteen years, who presented himself for treatment for what was considered a tumor growing in his nose. For four months he had a fetid catarrh with occasional epistaxis. For the previous two months the growth had been observed occupying the left nasal cavity, where it seemed to be attached to its wall at its upper part, its free end looking downward in the shape of a truncated cone.

The tumor was seized with dressing forceps and extracted. It proved to be a canine tooth. The free extremity was covered with enamel, which stopped short at its junction with the root. The root was deeply embedded in the side and upper part of the antrum. The boy had got his set of permanent teeth, with canines and incisors on both sides. There was no deformity of the jaw and no swelling or cystic formation. It was clearly a case of extrafollicular development, an irruption of a tooth in the wrong place, the peculiarity being that, while in reported cases of a like nature the crown of the tooth shows itself at the floor of the nasal cavity, from below upward, in the present instance the dental follicle was transposed, and the irruption was from above downward. The tooth is in the English Royal College of Surgeons' Museum.

SECOND DIVISION.

CASE I.—Dr. Alexander W. MacCoy, Philadelphia, reports the following: Anna S., of New Jersey; white; aged forty-five years, came under my care, having the following history: Family history shows phthisis and eczema; personal history has always been delicate. Shortly after birth she had a gathering just below the right orbit, which opened and remained a suppurating sore for several years. There was extensive necrosis of the bones of the face on that side. This finally healed after the condition had lasted for several years. The depression resulting from the loss of bone can be seen and felt. She was born at full term. At time of birth she had two teeth on the right side of the upper jaw, just behind where the eye-teeth normally are; these were pulled by the doctor in charge a short time after birth. Her primary dentition was normal, all the teeth coming through except the one just back of the right eye-tooth. These teeth which she got when a child remained permanently, and she never had a second dentition. Her teeth were always bad, and she suffered so much from them that in 1884 she had them extracted, and has since worn artificial teeth. Ever since she can remember she has had catarrh of the right nostril, with very offensive discharge; occasionally small pieces of bone, the size of finger-nails, which were ragged and felt gritty, came away in the discharge. In 1884 she sought relief at a dispensary. At that time she could feel a gritty substance beneath her right orbit, as though there was a piece of loose bone there. She could also feel a hard substance in her nose by inserting her finger. She con-

tinued going, at more or less frequent intervals, to the dispensary. In September and October, 1895, she suffered so intensely from occipital and temporal headache that in the first week of October she went to the Out-Patient Department of the Pennsylvania Hospital, where she first came under my care. Inspection of the right nasal chamber showed a pinkish-white, glistening object on the floor of the nasal fossa, which appeared to project from it, and resembled a polypus in color. Examination by probe revealed hardness, fixation, and sensation of bone, and the object was diagnosticated a tooth, root presenting. The distance from the vestibular opening was four centimetres, the visible projecting root, one centimetre in length, directed at a slightly oblique angle towards the median line, and free from contact with the nasal chamber. The right nasal cavity was markedly irregular, the anterior portion of the lower turbinated bone being rudimentary. The surface of the floor of the nose was very irregular, with marked deflection of the nasal septum to the left. Great hyperæmia of the mucous membrane existed. The removal of the tooth was accomplished without much difficulty, by the use of long sequestrum forceps. Upon its removal the hemorrhage was free, followed some time later by secondary hemorrhage. No necrosis of the surrounding bony tissue was observed. After rapid healing a depression remained in the floor of the nose where the tooth had been. The occipital and temporal pain was markedly relieved and the local and general condition greatly improved. Examination showed the tooth to be a permanent bicuspide.

CASE II.—Dr. A. W. Watson, Philadelphia, reported the following case: The case was of a man, thirty-three years of age, who had a sarcoma of the right nasal chamber, involving primarily the inferior turbinated bone, and subsequently the whole superior maxilla. During an attempt under ether to remove the diseased tissue the instrument struck a hard substance embedded in the tissues under the inferior turbinated bone; upon removal this proved to be the root, or part of the root, of a tooth.

CASE III.—Hall DeHaviland reports a case of a girl, aged fifteen years, in whom there existed in the right nostril a misplaced tooth, which proved to be the right canine. There were marked signs of hereditary syphilis, and a fetid discharge issued from the nostrils. The nasal septum was perforated. The tooth was extracted from its abnormal position three months after it was first seen.

CASE IV.—Schæffer, of Bremen, reports a case of a man, aged thirty-six years, who for a long time had suffered from obstruction of his left nostril. Since the age of fourteen he could feel a hard body in the left nostril with his finger. All his teeth were present in their normal position. The foreign body was extracted with a snare and forceps, and found to be an incisor, measuring in length a centimetre and a half, in its greatest breadth half a centimetre. It had for its crown enamel. On its small root it had a little cap of cartilage.

CASE V.—E. Fletcher Ingals, of Chicago, in examining a patient who had for some time suffered from nasal catarrh, found on the floor of the left naris, four centimetres back from the nostril, a hard substance, feeling, when touched with a probe, like bone. On seizing it with forceps the patient suffered severe pain, like that caused by striking a decayed tooth. The pain was so intense that it was necessary to anæsthetize the patient before a thorough examination could be made. After the patient was etherized the body was engaged in a snare and drawn out, when it was found to be a supernumerary tooth, resembling closely a canine, and two centimetres in length. The tip of the root had been exposed in the nasal cavity, and below this tooth was covered with tissue which was adherent down to the crown. The dentine of the crown was perfect, excepting a small perforation at its apex, but within the tooth was decayed. The tooth must have been projecting within the nasal cavity for some time, for the portion of the apex of the root which was uncovered had lost by erosion about a millimetre in thickness from its entire circumference. He says it is comparatively rare for teeth to grow in the roof of the mouth or nasal cavities, yet several such cases have been met with. In nearly all instances the "wild tooth," as it is called by the laity, is found to be a supernumerary tooth or a misplaced canine. Professor E. S. Talbot examined the tooth and the patient's mouth, and stated from the appearance of the tartar and the green stain upon the apex of the crown it must have occupied a diagonal position in the hard palate, the crown being in the roof of the mouth, pointing towards the central incisors, and the apex of the root in the nares pointing posteriorly. A ring of tartar encircled the crown from about three millimetres below the upper surface to nine millimetres above the lower surface, and that part of the crown below the ring was covered with a fungus growth, which proved that that part only was exposed in the mouth. The tooth had decayed because of the imperfectly

formed apex of the crown until the pulp had become exposed, and death had resulted, causing alveolar abscess, the sac of which came away with the tooth. He concludes, "While it is not uncommon to find supernumerary teeth in the roof and anterior part of the mouth, it is very rare to find the apex entering the nares."

CASE VI.—J. S. Marshall, of Chicago, reports a case of a superior wisdom-tooth discharged from the nasal passages. A woman, aged sixty-two years, had suffered from facial neuralgia on the right side, accompanied by severe otalgia for ten years. In October, 1884, she suffered intensely from what she supposed to be a severe cold in the head. The right nostril became slightly swollen and completely obstructed. Breathing was almost impossible when the lips were closed. After an unusually great effort in coughing and blowing her nose, a few days after the onset of the cold, she suddenly felt something fall upon her tongue, which proved, upon examination, to be a large right superior wisdom-tooth, covered with fetid pus. There was immediate relief of facial pain. Thirty years previous she had all her upper teeth removed; about four years after the removal of her teeth a tumefaction appeared upon the right superior maxilla, near the tuberosity. She consulted a dentist, but he could offer no explanation of the swelling, which disappeared in a few days. In May, 1884, she suffered from an abscess of the right ear. For several years previous to the discharge of the tooth she had had a slight fetid discharge from the nose. Dr. Marshall offers the following explanation of the symptoms, that all the pain and discomfort in the right facial region was due to this erratic tooth. The pain and swelling twenty-five years previous to the discharge of the tooth was due to the irruption of this tooth in an inverted position, which, taking a direction upward and forward, finally pierced the floor of the antrum of Highmore. The abscess in the ear must have been the result of an abscess at the roots of this tooth, which discharged its contents into the meatus, and at the same time freed the tooth from its crypt, and left it loose in the antrum. The tooth finally worked its way to the anterior portion of the antrum, and by contact with the nasal wall produced ulceration of this and the inferior turbinated bone, and thus found its way into the nasal passages. The catarrhal discharge was due to the presence of the tooth in the antrum. Dr. Marshall regards the case as interesting, in that it explains an obstinate case of trifacial neuralgia. It indicates the probable cause of a severe aural abscess.

CASE VII.—The author was consulted by Mr. M., aged forty-two years, sent by a rhinologist, who stated that pus was present in the floor of the nose, and he suspected it was due to a diseased condition of the incisor teeth. Upon examination it was found that the left upper lateral had been extracted but recently, as the tooth had been very sore and the gum and surrounding tissue had been much swollen. A probe could be passed to a distance sufficiently far to reach the floor of the nose; carious bone could be detected by exploration. Absorption had taken place to such an extent that pressure on the gum tissue directly back of the tooth-socket caused pus to flow out of the opening from which the tooth had been extracted. It was found also that pus was being discharged to a limited extent into the nose, where there was a fistula. The tooth-socket was washed out with tepid water, followed by hydrogen dioxide, full strength, which distended the gum tissue on the palatine side of the socket. The carious bone was removed with a large bur, and the cavity again syringed with hydrogen dioxide and packed with carbolized gauze, to prevent gum tissue from healing from the outside rather than by granulations from within. The opening was treated for several days and responded, but did not heal until the carious bone was extensively removed, and the wound was allowed to heal from the bottom by granulation. In this case the patient was entirely relieved. The trouble in this case was caused by the abscess of the tooth producing absorption and by breaking through into the nasal cavity by line of least resistance, showing that the root of the tooth had been separated from the floor of the nose only by a thin lamina of bone or by muco-periosteum.

CASE VIII.—Mr. S., aged thirty-eight years, sent by a rhinologist to see if teeth were the cause of the discharge of pus from outer wall of nose. The right superior lateral was found to be devitalized and considerably discolored. When it was proposed to open into the tooth the patient stated that he felt sure that the tooth had nothing to do with the trouble, as it had been quite recently opened and found all right. I made the remark that I could not report to his physician that the tooth was not the cause of the trouble unless I opened it. The root of the tooth had been filled with oxyphosphate or oxychloride for about two-thirds its length. The upper part of the root-canal was putrescent, and by careful examination by a fine nerve-broach, the serrations of which had been filed away, a small apical opening was found and somewhat enlarged, after which a fine exploring wire was passed for a distance of two inches

by actual measurement. The probe was pushed until it met resistance of an elastic nature. As it was slightly pushed backward when the hand was removed, it showed that it had not followed the fistula, but came in contact with the periosteum and mucous membrane of the nose on the cheek side. Hydrogen dioxide was injected, but could not be forced into the nose. It was necessary, finally, to remove the tooth and bore upward a considerable distance. The opening was syringed with hydrogen dioxide, full strength, and after a few treatments a cure was effected. I have in my possession a letter written by the patient six months afterwards, stating that he had had no further nasal trouble and that the socket had entirely healed.

CASE IX.—Mr. T., aged fifty-five years, was being treated for nasal catarrh, and had been using nasal syringe for two years. The patient had been having an offensive discharge from the nose for several years and never received any permanent relief, but was growing rapidly worse. I was asked by this patient, who was a person of more than ordinary medical knowledge, if it were possible for him to have nasal trouble and discharge of pus from any condition of his teeth. The patient said he asked the question as he had on the same side of the jaw as that of the nasal trouble a very badly decayed and troublesome tooth. In reply, I assured him that it was quite possible to have such a condition as he described, and explained the relation of the teeth to the antrum and of the antrum to the nose. I found, on examination, that the left superior first molar was devitalized, badly decayed, and much loosened, and was surrounded by inflamed gum-tissue, from which pus oozed on slight pressure. The cheek was much swollen, infiltrated, and painful on pressure. The patient stated that the discharge from his nose was greatest after being on his knees in church. He said that he had a dull, heavy feeling on that side of his face, which was more pronounced during cold, damp weather, and that the discharge was unilateral. All diagnostic points were in favor of abscess of antrum. The tooth was removed, and with it came away a portion of the alveolar process, necrosed and very offensive, leaving an opening into the floor of the antrum. The antrum was syringed with tepid water, at about 100° F., and afterwards, as the opening was large, with hydrogen dioxide, full strength. Here I would caution care about injecting hydrogen dioxide into any cavity, unless the opening is sufficiently large for it to escape freely after coming in contact with pus; otherwise you may give your patient

considerable suffering, owing to the gas generated by the disintegrating action of the hydrogen dioxide on the pus. It is well, therefore, to first syringe the cavity with a warm alkaline solution, such as ten grains each of bicarbonate, biborate, and chloride of sodium to the ounce of water; this may be followed up by full strength hydrogen dioxide with perfect safety. The patient from first treatment had marked relief. The opening at first was closed to prevent entrance of food, or any foreign body, by packing with carbolized gauze, to which a silk ligature was tied and attached to the tooth, lest it should be drawn into the cavity by suction. This is very important, as serious trouble has in many cases been caused by pieces of cotton, plugs, tubes, etc., being allowed to enter by accident into the antrum. If such an accident should happen, the cotton might possibly be removed by enlarging the opening and engaging it by an explorer of the nature of a nerve-broach, but should a plug of any kind enter, it might be necessary to make an opening sufficiently large to explore with the finger. A case was reported to me some time since by a rhinologist, who said a patient, after weeks of suffering from antral discharge, one day sneezed, and upon examination of discharge found a piece of cotton that had been packed into an alveolar tooth-socket to stop bleeding, after the extraction of a very bad root. The piece of cotton evidently worked its way into the antrum and caused the offensive discharge, which entirely disappeared without further treatment after the cotton was sneezed out.

Dr. Brophy reports finding a piece of flexible rubber tubing used by the doctor who had treated the case unsuccessfully. Continued washing out the antrum with hydrogen dioxide and carbolized water daily for two weeks, then weekly and triweekly, as the discharge lessened, but was not able to remove the plug and cease treatment until the patient had been under treatment for about three months. The opening was kept closed by solid plug with flange attached to keep it from passing altogether into the antrum. In the flange a hole was drilled, by which means it was tied to the adjoining tooth, for fear it might drop out and get into the patient's throat.

I would state that, after considerable practical experience, drainage-tubes of whatever kind are *not a success*, for the reason that they do not drain and are difficult to keep clean.

If the tube enters at a level with the floor of the antrum, the mucous membrane will close *over* and *into* it. If it enters above

the floor of the antrum, it cannot drain the bottom. If the tube has been perforated, the holes must necessarily be so small that the pus, which is generally thick and viscid, will close them up. The patient should be seen daily until the discharge is perceptibly lessened.

As regards the solid plug of silver, platinum, or hard rubber in preference to the tube, such authorities as Dr. Fillebrown, of Boston, says in an article in the *INTERNATIONAL DENTAL JOURNAL*, January, 1897, "I make the opening as large as a common lead-pencil, and make a rubber plug attached by a clasp to a tooth to keep the artificial canal patulous, and render the atmospheric condition normal. The plugs could easily be removed by the patient, and after cleansing be readily replaced. I have tried both the open tube and solid plugs, and much prefer the latter. It is hardly practical to use a canula large enough to syringe through freely and not to also allow the circulation of air, which is not a natural condition. The plug being easily removed, both plug and cavity can be washed thoroughly clean. A tube cannot be made clean without much trouble."

To go back to the case, I would state that an excellent result was obtained by injecting a fifty per cent. Lugol's solution, which hastened the cure. Lugol's solution is iodine, 5 parts; iodide of potassium, 10 parts, and water, 85 parts. Tincture of iodine should not be used, as it is too irritating to the mucous membrane of the sinus.

Dr. W., aged forty-eight years, sent by a rhinologist, with very offensive discharge from right upper nasal cavity. Although the patient had made careful observations, he could not account for the trouble, and was very despondent, in fact, said that he did not expect to live very long. The patient had lost all his upper teeth and was wearing a rubber plate. Upon examination an inflamed area and fistula was discovered, corresponding to position occupied by first molars. The probe came in contact with a hard substance, which was removed, and proved to be the root of a tooth. The root was embedded in the soft tissue. After extracting, the explorer was passed into the antrum, through which opening the antrum was washed with tepid water, discharging into the nose and carrying with it decomposing pus of the most offensive nature. The patient was almost entirely cured by one treatment. After three treatments the patient was discharged cured.

Burchard, of Philadelphia, reports a case of an alveolar abscess

on the central incisor, with discharge from one nostril simulating a case of ozæna. This had occurred in an individual with a thin lamina of bone in the upper jaw separating it from the floor of the nose, where the inflammation had travelled by continuity of structure, by necrosis, and sinus openings into the nasal chamber. The alveolar process was unusually short; the apices of the roots of the central incisors being thereby close to the floor of the nose, inflammatory action in the nasal cavity causing change in the root of the tooth, from which it received its blood-supply, would bring about rapid pathological changes in structure. Burchard calls attention to the fact that abscesses penetrating into the nose following the line of least resistance are due to the presence of the anterior palatine and incisor foramina, which are situated immediately behind the incisor teeth.

Irregularities and abnormalities as to formation of the accessory cavities, the antrum, etc., may explain many of the peculiar or unique cases often reported. Cryer has shown by his sections of the skull, with a view to demonstration of the relation of accessory cavities to the nasal chamber, that almost any size or shape of cavity or thickness of bone is possible, the antrum cavities varying in size from a little larger than a pea to three times the usual size, and extending under the floor of the nose. In the cases associated with nasal lesion, it is quite likely that the chronic inflammatory process set up in the floor of the nose may interfere with the nervous and vascular supply of the tooth directly under it, causing atrophic function with devitalization.

Irregular nasal breathing will affect the regular development of the upper jaw and facial bones, not including the lower maxilla. It will be noted in children with nasal obstruction that the upper and lower jaws do not fit, due to the fact of arrested or irregular development in the upper portion of the face, with no interference to the lower maxilla. The peculiar staring countenance of mouth-breathers includes more than the mere unnatural expression of the face produced by the constant wide-open mouth. The masseter muscles, instead of being developed and trained to hold the jaw in its proper place, are developed and trained to allow the mouth to remain open, and even after the removal of nasal obstruction in childhood, it requires weeks of training to get the child to keep the mouth closed, although it will be found on closure of the mouth perfect nasal breathing has been established. It is usually attributed to force of habit; but in reality the muscles are not ac-

customed to holding the jaw in that position, and it is maldevelopment.

Hubbard, of New York, on "Immediate and Remote Causes of Malformation of the Dental Arch," in a paper read before the First District Dental Society of the State of New York, December 14, 1897, as to what is a normal upper arch, said "that which is most useful and performs its functions most perfectly, according to the environments in which it is found, may be useful and perform its function properly, and still not be a thing of beauty. In many cases irregularity of the upper arch allows the person to perform the function of mastication, in fact all the functions performed by the teeth, and yet the relation of the upper and lower jaw is not a perfect one. The period after birth up to the time of the osseous union which occurs in the facial bones is the time to correct irregularities; after that time it is almost impossible to alter the shape of the upper jaw or the nasal cavities, except by removal of the bony structure. Kölliker was the first to call attention to the fact that in whatever direction the jaw has increased, the increase has been produced by additions to the external surface. Obstructive lesions of the pharynx, naso-pharynx, and the nose in childhood then must play an important relation to facial development. Possibly the most important of all is deflection of the septum and enlargement of the pharyngeal tonsils. There is a constitutional or inherent tendency in children of a lymphatic temperament to enlargement of the lymphoid structure. This must be taken into consideration from a stand-point of prognosis. Pressure on the face at birth may have considerable to do with the starting of facial irregularities, or the careless placing of a child in the same position, allowing pressure laterally or antero-posteriorly to be kept up in the same line for days and weeks, may be the starting-point of facial irregularities. The proof of the vastly important relation of nasal breathing to irregularities of the teeth is shown by this fact, that, in a great majority of cases with irregular teeth, whether it be in childhood or in adult life, the history will show obstruction within the nasal cavity at some early period in the individual's life. It may be in an adult, and the lymphoid structure in the naso-pharynx has entirely atrophied and disappeared, but the marks of that interference in respiration is evident in the development of the upper face and the upper jaw; the two are intimately associated.

The effect of thumb-sucking on the development of the floor of the nose and the anterior part of the superior maxilla is almost

characteristic. While this deformity or malformation is not brought about by obstruction to nasal breathing, yet it shows the marked influence which suction or pressure will have on the soft developing facial bones.

REFLEXES FROM LOWER MOLARS.¹

BY JAMES TRUMAN, D.D.S., PHILADELPHIA.

THE causes of reflex disturbances have been sufficiently studied as a collateral branch of dental pathology, and it may seem a useless expenditure of the time of this organization to attempt to add anything to the literature of the subject.

When the student of dental lesions comes to investigate the various books that are supposed to treat upon the reflexes of the teeth, he finds himself narrowed down to a small compass. He may critically examine all the works on dental pathology and oral surgery in the English language, issued in recent years, to be surprised with the fact that where this subject received extended notice it has been mainly confined to infantile dentition, or it has been regarded as of secondary importance, and by some it is held to be unworthy of pathological consideration.

The eruption of the permanent molars, aside from their histological interest, have secured but slight attention. It is true that the consideration of the intimate connection between the lesions occurring in teeth and the neuroses of the fifth nerve have, of recent years, been more thoroughly studied, but it has been more from the histological side, hence abnormal formations in the pulp have received a full degree of attention from dental writers, as these enter into daily practice. The exceptional conditions are, however, passed by as of minor importance, or they have been entirely overlooked.

It is somewhat strange that the lesions of dentition have been treated by the majority of medical writers with slight consideration. The opposition by the medical profession to the generally accepted position of the dental, that the reflex disturbance of dentition is of vital importance, can be understood, for medicine, until very recently, has entirely underrated, if it has not entirely ignored, the

¹ Read before the National Dental Association, held at Niagara Falls, August 1 to 4, 1899.

oral cavity as a source of disease. This should not, perhaps, be regarded as remarkable, since the origin of disease in general has only been studied scientifically during the past twenty-five years, and is even now in its infancy. Medicine has been based on symptomatology, the effect, and not the cause, receiving attention. It is, therefore, not a special source of wonder that the neuralgias, the tissue-disturbers, the new foci of inflammation, having their origin in the teeth, have received only a moderate degree of thought.

While this is true of medicine in general, the specialist, the stomatologist, must share the responsibility of neglect.

The views that this paper proposes to consider are, in the main, written to enforce the idea that more attention should be given to the eruption of the molars than has been accorded them. The same laws of growth are manifested here as in the first dentition, and are equally responsible for serious disturbance along the course of nerve-connections. Consideration will alone be given to the lower molars, for the question of growth does not apply with equal force to the upper set. It is, however, recognized that nerve irritation proceeds from these as it does from all the teeth disturbed from their normal relations.

The process of growth, whether in vegetable or animal tissues, is one of the most interesting in nature. John Tomes ("Dental Physiology and Surgery," 1848), in writing of this force, says, "It would be difficult to estimate the actual amount of mechanical force developed by a growing tooth, but we may form some estimate by observing the force generated by a growing vegetable." If this force of growth be applied to the teeth, and it must be so applied, it can be well understood why, in dentition, reflex disturbance occurs. The whole question of treatment might be condensed into one word, —*room*. With space sufficient for the development of teeth all dentition would simply be a physiological and not a pathological process. It is, therefore, a question of space or room for development.

Growth proceeds from the first layer of enamel and dentine to the last of cementum, and in proportion as the enlargement proceeds must the tooth be given space for its formation, and, to accomplish this, the gumward advance must be regular and with no opposing obstacles. In deciduous dentition the obstacles are confined to the gum tissue, and these teeth are equally with the permanent a source of reflex disturbance.

The student of these phenomena has, therefore, a comparatively simple problem to solve. His duty is first to study the anatomy of

the jaw, and the process of growth in the jaw primarily, and to follow this by that of the teeth. He cannot omit in this consideration the position of development and the resulting changes that take place in its progress.

The development of the first permanent molar takes place about the tenth week of foetal life, and from this period until the sixth year subsequent to birth is gradually formed into the largest molar of the series. The broad occlusal surface of this tooth would seem to indicate that at the period of eruption it would be a special subject for pathological disturbance; but it is well known to be more generally free from reflexes than any other of the developing permanent teeth in the inferior maxilla. If the jaw has been examined, it will be found that this exemption is clearly explainable by the width of the jaw, measuring from the gum tissue to the inferior dental canal. The only obstruction to receive serious consideration is the tense overlying gum. This, while resistant, gradually yields to pressure, resorption taking place, and while it may retard eruption, it cannot, as a general rule, cause pressure upon the exposed pulp or upon the inferior dental nerve. Hence there is a marked and almost uniform freedom from neuroses in this tooth, and it may be passed as an unimportant factor in pathological disturbance.

The second, or, as it is commonly misnamed, the twelfth-year molar, has an entirely different place in development, and in consequence more fully exemplifies the importance of room for growth than any of the series, not even excepting the third molar, which is usually regarded as the prime factor in neuralgic lesions. From an extended examination of the literature of the subject, nowhere have I found this tooth noticed as a cause of reflex conditions. It is, therefore, worthy of study in its several relations, origin, development, and eruption.

The growth of the jaw posteriorly carries the germs of these teeth well up in the rami, and as development proceeds both in jaw and teeth there is a gradual descent towards the angle of the jaw. The period of passing this point, through development of the latter, to assume the direct vertical position is the critical period. At this time the crowns are fully formed externally and the roots have developed to half their normal length. If the growth of the jaw is in harmonious relation to the development of the teeth, this period may be passed without notice; but this is not always the case. The growth of the roots may have increased more rapidly than that of

the jaw, and in passing the angle they may, and frequently do, impinge upon the inferior dental nerve, or the exposed pulps may possibly be forced by the exceedingly tense gum against the bone envelope, in either case resulting in serious reflex suffering to the individual. The passage of this critical point by these teeth occurs about the ninth year.

The characteristic phenomena at this time are marked cerebral disturbance, resulting in convulsions, epilepsy, chorea, insanity, hysteria, otalgia, ocular diseases, and a long list of more or less aggravated lesions. In the before-mentioned work of Tomes, the author gives this as his opinion on reflex manifestations: "Before serious and painful results can arise there must be a concurrence of many circumstances. The patient must be of a strumous constitution or predisposed to inflammatory action, or the nervous system must be peculiarly susceptible to excitement. In the latter case epileptic fits may supervene. . . . That epilepsy does arise in some cases from this cause is proved by its appearing when the teeth are passing towards the surface and disappearing when passage is given to the teeth."

Dewees ("Physical and Medical Treatment of Children") makes this admission: "And though the teeth cut [lanced] upon may yet be *remote from the surface*, still the operation may be of the greatest possible advantage by dividing the membrane, . . . and the disturbance of the system is quieted from the moment the gum is divided." That the phenomena have been attributed to other causes is not surprising, in view of the fact that comparatively slight attention has been given to dentition as a whole and the permanent teeth in particular.

That this statement is not based on mere conjecture, attention is called to the anatomical relations of the second molar with the jaw. A very cursory examination will bring conviction as to the truth of the conclusions at which I have arrived. My attention was originally called to this tooth as a prominent cause of reflexes at this age by several cases coming under my care, which led to a more critical examination to discover, if possible, the cause and the remedy.

It is a well-understood fact by the more advanced dental observers that the nervous disturbances at this age, about nine years, have generally their origin in the teeth, and so certain are these as to the cause that the intelligent practitioner never fails to examine for obstructed dentition when called to diagnose a case. Dr. C. N.

Peirce mentions a case, a child of a distinguished physician, and afflicted with chorea. The cause was diagnosticated as a retained deciduous molar. The father was not able to comprehend that this retention could cause the nervous symptoms in the child. The extraction, however, demonstrated the diagnosis to be correct, and all reflex phenomena ceased.

In the case of the second molar, as well as others similarly situated, the relief must come by affording room for growth.

It is apparent that this is a difficult procedure with this tooth. It is deeply embedded in the surrounding tissues, and it would seem impossible to afford any immediate relief. The first case that presented and which claimed serious consideration was a member of my own family. At the ninth year this child was, without apparent cause, affected with violent convulsions that assumed an epileptic character. The seizures were prolonged, but days frequently intervened between them. The study given the case developed the hypothesis that the second molar was the pronounced factor in the cerebral disturbance. To verify this theory the child was carefully watched, and upon indications of an approaching nervous storm the lance was deeply inserted over the position of this molar. The result was entirely confirmatory of the diagnosis, and by care in watching symptoms and a repetition of the lancing, whenever necessary, the child passed the critical period without further reflex phenomena. Since that time other cases have been under my care, and the same simple method of treatment has been followed with equally good results. During the present spring a child of nine years was brought to me, suffering intensely with pain in both ears. Examination of the teeth failed to show any cause for this, in exposed pulps or other lesions. These having been excluded from the possibility of causing the suffering, it was decided that the origin of the pain was reflex and must be from pressure upon the pulp of the partially developed second molars, or impingement of both upon the inferior dental nerve. The lance was at once applied to both right and left, with immediate relief, and without any subsequent recurrence of pain now several months since the operation was performed.

There is, therefore, no question in my own mind but that dentists are called upon to watch carefully the development of the second molar in childhood, and advise, the only remedy, free lancing.

The books are full of the sage advice that lancing should not be

performed until the tooth manifests itself by forcing the gum above it into a rounded prominence. Lancing is indicated at *all stages* of development, whether upon the deciduous or permanent teeth, and should be resorted to as frequently as the symptoms indicate reflex phenomena. Dr. Dewees (quoted previously) recognized this, and he is the only medical writer with whom I am familiar who has comprehended this important point.

The third molar is so frequently the cause of reflexes that it would seem almost a useless expenditure of time to reiterate a well-known fact, and yet an examination of all the books on dental pathology and oral surgery reveal a great deficiency in the treatment of this subject. While this is true, I must refrain from its extended consideration before this intelligent body. Suffice it to say that these teeth, like the second molars, find their place of origin in the rami of the inferior maxillæ, and have difficulty in assuming the direct vertical position. The two principal positions assumed by this tooth, causing general nervous irritation, are the oblique and the horizontal. The former is not a frequent cause of reflexes, and while it may produce these by impingement upon the inferior dental nerve, it more often effects this by producing unobserved decay at the cervical border of the second molar, and eventually pressing upon the pulp. The difficulty of diagnosing this must be evident, for as decay proceeds the tooth advances, filling completely the cavity and causing the lesion to be overlooked, until neuralgic pains indicate some cause requiring the attention of the dental surgeon.

The most serious of all the malpositions of this tooth is the horizontal. The tooth in passing down from the ramus strikes the posterior root of the second molar and there must stop. Deeply embedded in the jaw, with the roots closely impinging on the inferior dental nerve, there is but one possibility, that of pressure upon that nerve, and that continually and more forcibly as growth proceeds. The reflex lesions are, as you are well aware, of the most serious character. The important matter to consider here is the diagnosis.

It is quite evident that a tooth thus situated produces its disturbing effect through lack of room, and that this room cannot be secured as long as all the teeth on that side are in place. If, then, the entire series, from the second molar to the canine, are in position at the age of eighteen to twenty-four, with lancinating and intermittent pains extending throughout the fifth pair, and with no visible signs of a developing tooth, it is evident that the third molar

is abnormally developed in the position named. An explorer passed down posterior to the second molar will settle this fact. If, however, the second molar be absent, or it is in place and the first molar absent, it remains reasonable that the third molar is not the cause of the neuralgia. The force of growth, as before stated, is quite sufficient to change the second molar from its normal position, and thus give room for the development of the third molar. If, however, both first and second molars are in place, the inference may be drawn that the third molar will not have sufficient force to move two such powerfully implanted teeth far enough to afford relief.

The importance of this malposition cannot be over-estimated. Forget mentions a number of serious cases, and almost every practitioner of dentistry has seen cases of obscure reflex pain, which may not have been fully comprehended. There is no lesion more easily treated than this, and yet it is one the general surgeon fails almost universally to diagnosticate correctly. A case which I reported many years ago may be worth repetition here as an illustration of this statement. A patient was sent to me for examination for a most obstinate case of neuralgia, which had resisted medical and surgical care for twenty years. The physician who sent her expressed himself as hopeless of having her relieved. The woman was a physical and almost a mental wreck. Feeble and emaciated, vision very defective, hearing with difficulty, she presented a most dejected and hopeless appearance. The examination of the mouth gave no indication of a third molar. All the other teeth were in place. An explorer was passed down posterior to the second molar, and the third was found occupying a horizontal position, abutting against the roots of the second molar. The patient was informed that the only remedy was the extraction of the second molar. No opposition was made to this, and the tooth was at once removed. The effect was immediate, all pain ceasing, and in twenty-four hours the third molar had advanced and filled up the socket of the second molar. The patient in a month's time had recovered her hearing and the eyesight was greatly improved, and her condition physically and mentally had become normal, pain having ceased entirely. She should have been saved this twenty years of torture.

At the time this case was under care the X-rays were an unknown factor in diagnosis. It is unnecessary to state here that this, at present, would have decided such a malposition with unerring certainty. This paper is not written for the favorably situated in large centres of population, where this aid can readily be obtained,

but for those in isolated practice, who will need to decide cases, as they occur, by the older and, perhaps, obsolete methods.

The reflexes from dentition, exposed pulps, calcification in pulps, and from other causes, have received due attention from various writers, but those interested will find very full reports of cases given by Brubaker, "American System of Dentistry," Arkövy, "Diagnostik der Zahnkrankheiten," in appendix prepared by Dr. Georg Creniceneau, and in Wedl's "Pathology of the Teeth." It is, therefore, not deemed necessary to do more than allude to the fact that the recorded cases are so numerous that he who fails to recognize their importance is not fully grounded in the pathological possibilities contingent upon the abnormal changes in teeth. The subject is still obscured by imperfect observations, but sufficient is known to afford a basis for intelligent practice upon the general subject.

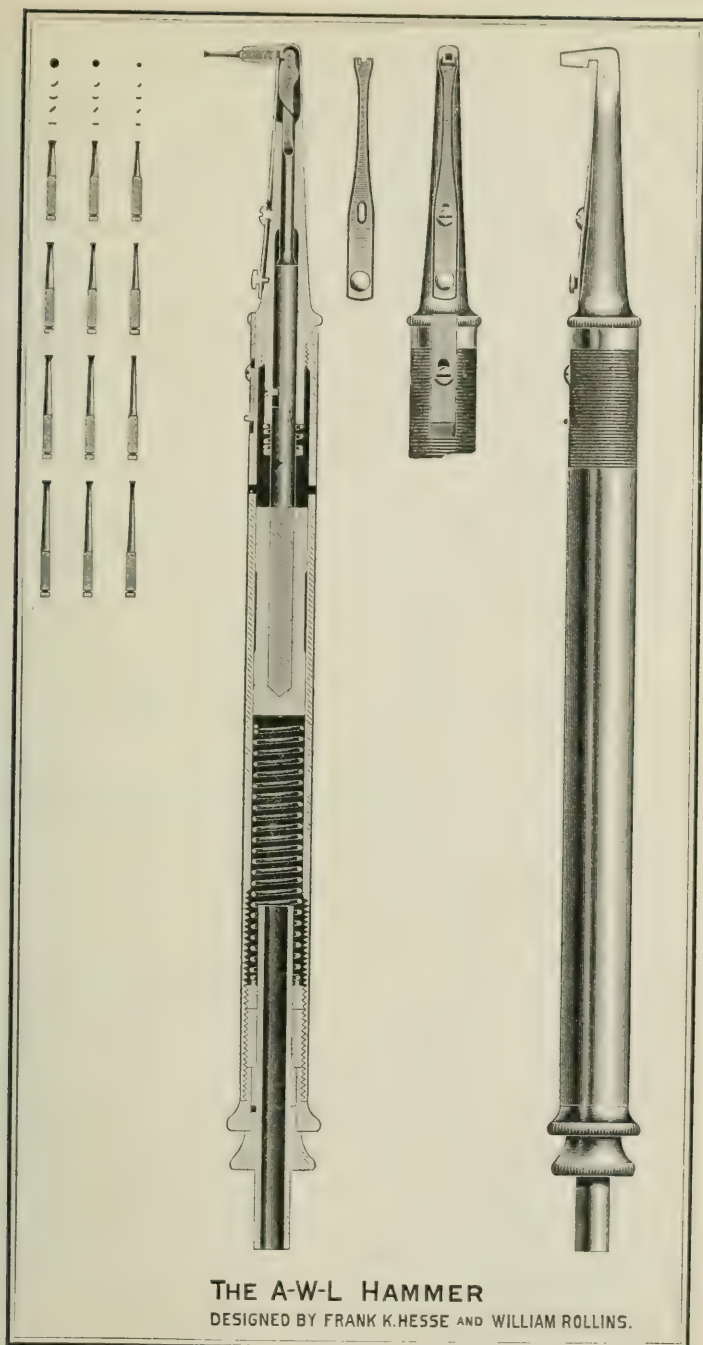
The reflex disturbances occasioned by the various recognized lesions have not been considered, as these are well understood and require no further elucidation. The main purpose of this paper has been to direct thought upon this subject, and more especially to two facts, first, that relief should not be delayed until the teeth manifest themselves at the gum border, but in all cases of disturbed dentition, whether it be with deciduous or permanent teeth, the lance should be freely used, and that at the first symptoms of reflex disturbance; and, secondly, to call attention to the wholly neglected second molar as a cause of many of the serious reflexes about the ninth year.

DENTAL NOTES.

BY WILLIAM ROLLINS.

NOTE II. A HAMMER.

As the commercial angle mallets are larger and less efficient than is desirable, I illustrate and describe one designed by my friend Mr. Hesse and myself. My aim was to increase the efficiency while reducing the size and number of parts. The drawings have been made with care, of the exact size, to avoid unnecessary description. The instrument is, however, smaller than would appear from the plate. This hammer gives an efficient and comfortable blow, does not obstruct the view of the cavity, and takes little valu-



THE A-W-L HAMMER

DESIGNED BY FRANK K. HESSE AND WILLIAM ROLLINS.

able space in the mouth. Only one angle is figured, but several are desirable. As the ends unscrew, the change takes but a moment and is more convenient than an adjustable plugger, for this latter construction increases the size. The blows are delivered where they should be, directly on the heads of the condenser points. The shafts being square, the condenser points can be placed in four positions. A few good shapes are shown in the plate. All parts are tempered. This hammer has no self-contained mechanism for starting or stopping, for I do not wish to give my hands extra work while my feet are idle. The simplest way to operate it is to have the air-engine driven by an electric motor controlled by a Berry foot-switch, thus giving complete control of the number and duration of the blows. I made the instrument small, so that it is practical to use it as a hand-tool to pick up and place the gold before starting the blows. As here shown, it is operated as a pneumatic, but the principle can be as easily applied to any of the mechanical mallets. I do not use them, however, as my patients do not like the character of the blows.

Abstracts and Translations.

THE RELATIONS OF DENTAL DISEASES TO GENERAL DISEASES.

BY WILLIAM HUNTER, M.D., F.R.C.P.

(Continued from page 522.)

RELATION TO GENERAL INFECTIONS AND INFECTIVE GASTRITIS.

THE class of diseases whose relation to dental diseases is not so clear and possibly hardly less important are (1) those of obviously infective nature, the only question being the channel by which the infection has entered the body,—such affections as acute osteomyelitis and necrosis occurring apart from injury; empyema, meningitis, ulcerative endocarditis, some forms of acute nephritis; and (2) the whole series of cases of obscure nature probably infective, characterized generally by features of blood-poisoning, and probably determined by some general infection, the origin of which cannot be made out.

When, as sometimes happens, such cases can be traced to infection from diseased teeth, light is cast upon the whole subject of the rôle possibly played by dental diseases in many general conditions. One of these conditions I consider to be *subacute and chronic infective gastritis*. I cannot better illustrate the class of case I refer to than by describing to you a case recently under my observation.

The case was that of a lady, aged sixty-two, sent to me by Dr. Ferris, of Uxbridge, where she had been on a visit, with a history of having been ill for nearly a year; symptoms all referring to stomach, pain, sickness, and obscure abdominal distress, necessitating use of opium; loss of flesh; symptoms suggesting cancer of stomach, although no signs of growth could be detected.

She presented a wasted, somewhat cachectic appearance, with pale, sallow complexion.

Next to the gastric pain, intermittent in character, she complained mostly of a constant bitter taste in mouth, a great loathing and distaste for food, an inability to taste her food, and a sense of nausea with occasional sickness, the sickness having no relation to food, coming on usually in the morning.

On examination I could not find any sign of malignant disease in abdominal or pelvic organs. The only physical signs of disease were to be found in the mouth. Her teeth had all been removed with the exception of four stumps. She wore two plates of false teeth, which were scrupulously clean. The gums, except around the four stumps, were quite healthy. These stumps presented a dark, rotten, dead appearance, and, in the case of three of them, on pressure pus welled out freely from their sockets through small pouting sinuses.

This condition of teeth she had had, she said, for a year or more.

The tongue presented a moist, soft, flabby appearance.

The provisional diagnosis I made, after full consideration, was against it being cancer, and in favor of the gastric condition being due to continual swallowing of pus. The sickness she complained of appeared to be an utter loathing of food, with nausea, rather than actual sickness, and these might be well accounted for by the quantity of pus she was constantly sucking into her mouth from the decayed stumps.

I directed her to have the stumps removed at once, preparatory to any further treatment.

She consented to this after some demur (the stumps, she said,

could not possibly be at fault, as they had been in that condition for a year or more,—a period closely corresponding, it will be noted, to the duration of her illness), and had them removed the following day, apparently with the most immediate and satisfactory result, for when she reported herself a week later, she had had only one return of sickness and gastric pain,—viz., the day after the extraction; had lost all bad taste in mouth; was able to taste her food for the first time for months; the tongue now quite clean.

This striking improvement, however, did not last. Three days later the gastric pain, with sickness and vomiting, recurred, and continued on and off for the next two weeks. A specimen of the vomit was obtained at this time,—i.e., three weeks after the extraction of the teeth; it was of a somewhat brown color, with rusty, and here and there redder, streaks, and small flakes resembling bits of grape-skin.

On examination I found these flakes to consist of fibrinous exudation, with numerous leucocytes and crowds of streptococcus organisms, along with bacilli and cocci in much smaller number.

As it was now three weeks since the suppuration in the gums had been stopped, I regarded the presence of these organisms as confirming my original suspicion,—viz., that the case was one of subacute infective gastritis or subacute infective catarrh.

Up to this time the patient had been struggling to get about, but she was now too ill to do so.

The subsequent course of the case was as follows: I confined her to her bed for eleven days, fed her entirely on peptonized milk and gruel, beginning with one and a half pints daily, applied counter-irritation to stomach with sedatives internally; and, specially to combat the streptococcal infection, gave salicylic acid in three-grain doses, thrice daily, after food.

The improvement was immediate and continuous. The sickness and pain were entirely checked from the first day, the tongue lost its raw, angry look, and became normal. The pulse fell from 102 to 80 and 70. Temperature normal (which had been 99° F.). In ten days' time she was able to go out driving and to return home to the West of England. I kept her on peptonized milk and gruel for another month, at the end of which time she reported herself as still without return of pain. A month later she reported herself still free from any pain, and gaining in weight, although still on milk diet. It is now five months since her illness, and she has no recurrence of any stomach trouble.

Cases of this kind could, I have no doubt, be paralleled by many others in the experience of members of the society. One almost identical is recorded by Miller (p. 298). A lady, aged forty-five, complained for months of severe pains caused by eating, loss of appetite, indigestion, etc.,—her troubles so great that she declared life had become insupportable. She showed two envelopes filled with prescriptions both for internal and external use. A glance into her mouth, its fetid odor, and the inflammation and suppuration of gums suggested at once the cause. The cleansing of the mouth and the use of antiseptic and astringent mouth-washes caused such a pronounced improvement in a fortnight that the patient could not often enough express her thanks.

In this case, he adds, the source of the trouble was so apparent he could not understand why it had not been discovered before. And it is with reference to the constant overlooking of such class of cases that he elsewhere brings the charge against many physicians, that “the custom to disregard dental diseases altogether as a factor in pathology is as unjust to their patients as it is discreditable to their profession. No physician can afford to be without a thorough knowledge of the pathological processes occurring in the human mouth, and their relation to general diseases.”

INFECTION FROM THE MOUTH AS A CAUSE OF INFECTIVE GASTRITIS.

While resembling, however, many others of a like kind, the case I have recorded presents some special points of interest: in respect, namely, of the actual proof of infection of the stomach by streptococcal organisms,—viz., the presence of pus, fibrin, and leucocytes, and numerous pus organisms three weeks after removal of source of the infection.

That organisms play a pathogenic rôle in stomach troubles by setting up fermentative troubles is fully recognized.

Most writers on the subject would appear to regard this as the only way in which gastric disorders may arise from organismal infection. The case I have recorded would appear to suggest in certain cases another and even more intimate connection between gastric disorder and organismal invasion,—viz., by an actual infection of the mucosa, and the setting up of, at first catarrh, and subsequently of more permanent inflammatory changes in the mucosa and submucosa.

The liability to such infection will be the greater if the organ-

isms introduced be the recognized pyogenic organisms setting up inflammation and suppuration elsewhere.

Now the number of organisms that enter the stomach with the food and from the mouth is very large, and a very considerable proportion of these are permanently to be found in the stomach contents. Out of twenty-five kinds of bacteria found by Miller in the human mouth, eight were found in the stomach contents.

Moreover, the old view that organisms entering by the stomach were destroyed by the gastric juice has had to be abandoned in the light of the observations of Macfadyen and others.

Only a certain proportion are destroyed. From Miller's experiments the conclusion is warranted that all bacteria swallowed at the beginning of a meal may pass alive into the intestine (in the faeces he found twelve of the twenty-five mouth organisms). It is only when the acidity of the gastric juice is considerable—say an hour or two after meals—that it exercises any direct bactericidal action.

"If we, furthermore, take into consideration the various and numerous affections in which the quantity of gastric juice, its percentage of hydrochloric acid, is abnormally small, it will appear as though the stomach can afford almost no protection whatever against the passage of pathogenic micro-organisms through into the intestinal canal," or, indeed, under favorable conditions, to their sojourn in the stomach itself.

If, in addition to diminished acidity, we have also increased supply of pathogenic organisms, and, moreover, the conditions be such that these organisms reach the stomach not only with food, but at all times, in the intervals between digestion as well as when food is taken, we have, I consider, pre-eminently favorable conditions for not only a temporary sojourn, but for possibly a permanent infection.

Such are the conditions typically presented in many cases of dental disease,—viz., long-standing suppurating conditions around teeth and gums, constant swallowing of pyogenic organisms, impaired digestion with diminished acidity.

That under such circumstances increased fermentations go on we know.

What, however, is not recognized, what certainly I never realized till I made the observations just described, is that there may be not only increase of the fermentative processes, but also, what is more dangerous, that organisms with well-defined pathogenic properties may become, so to speak, permanently established in the stomach.

The mucosa of the stomach remains permanently exposed to infection from pyogenic organisms, and may in time become actually infected with them.

The subacute and chronic catarrh so often met with in association with suppurative dental disease may thus be, as in the case I have recorded, of infective origin, not merely the result of irritation set up by fermentation of food products, but the result of definite invasion of the mucosa and submucosa.

Under certain circumstances it is conceivable that the effect might not stop short at catarrh, but, on the contrary, lead to subacute inflammatory changes, resulting, as all such changes in glandular organs do,—viz., in atrophy of glandular cells and increase of fibrous tissue.

The condition termed *atrophy of the mucous membrane of the stomach*, so well studied by Dr. Samuel Fenwick, and the more acute inflammatory change occasionally met with and likened by him to *eczema of the stomach*, may thus be, and in my opinion probably are, the result of old-standing infections.

PHLEGMONOUS GASTRITIS.

It is conceivable, further, that in a still rarer group of cases the infection might become an even more acute and generalized one.

Such a condition we have in the disease variously designated phlegmonous gastritis, mycotic gastritis, purulent inflammation of walls of stomach, submucous abscess, gastritis purulenta, suppurative gastritis, gastritis bacillaris, gastritis mycetica.

On this subject I can refer you to an admirably full account given in the *Edinburgh Hospital Reports* for 1896, by Dr. R. F. C. Leith.

It may be said that such a rare condition as phlegmonous gastritis can have little in common with such a comparatively common condition as that we are discussing,—viz., subacute and chronic gastric catarrh.

One might equally well maintain that such severe and generalized conditions as pyæmia and ulcerative endocarditis, or such intense local infections as acute osteomyelitis, cannot have the same underlying cause,—viz., pyogenic organisms as the smallest furuncle, the slightest local erysipelatous attack, or, lastly, as the suppurative process going on around a diseased tooth.

But, nevertheless, such is the case. The difference is not one of kind, but one of resistance and dose. If, as the above case would

appear to show, some forms of subacute gastric conditions met with in association with suppurations around teeth may be due to infection of the mucosa by the pyogenic organisms swallowed, it may well be that from time to time the infection of the stomach wall may take on a specially virulent character. While the ordinary effect of infection underlying dental caries is to set up at most a slight local periostitis or a localized gum-boil, in certain cases the same condition may give rise to the most intense local suppurations or even give rise to general pyæmia.

In six out of the fifty-two cases of phlegmonous gastritis collected and tabulated by Dr. Leith, micro-organisms were actually found. "If the methods for detection of bacteria had been as well known as they now are, I have no doubt they would have been found in them all" (Leith).

In the case described by himself and in three of the above six the streptococcus was the chief organism present.

He draws attention to the parallelism betwixt phlegmonous gastritis and erysipelas, and notes that while we often cannot tell how or why an erysipelas arises, we never speak of it as being an obscure disease, whereas every author who has yet written upon phlegmonous gastritis has done so.

Leith thinks it may be looked upon as a severe form of erysipelas of the stomach.

Curiously enough, however,—and this is the interesting point in relation to our subject to-night,—in discussing the probable source of the infection in such cases, the various possibilities are considered to be two,—viz., the disease may arise from the side of the *stomach* or from the *blood*.

As to the conditions which favor the determination of the streptococcus to the stomach, the relative importance of alcoholic excess, dietetic errors, and overloading of stomach is considered. There is no suggestion that the source of infection might possibly be the mouth.

And yet one of the cases (No. 45), in which the symptoms came on six days after a tooth-extraction and death ensued on the tenth day, might well have had such an origin.

Condition found: In stomach submucous, muscular, and subserous coats infiltrated with pus; mucosa slightly hyperæmic; in mouth "the gums swollen, and showed purulent ulcers; alveoli of jaw slightly splintered. Submaxillary glands swollen."

The relation of events in this case I should conceive to be: a

diseased tooth with purulent ulcers around as focus of infection; extraction; further inflammation and necrosis; constant flow of pus organisms into stomach for six days (probably also for a long period *before* the tooth was extracted); acute infection of its walls; suppurative inflammation and death.—*Transactions of the Odontological Society of Great Britain.*

Reports of Society Meetings.

NATIONAL DENTAL ASSOCIATION.

(Continued from page 613.)

Tuesday, August 1.—First Day.—Second Session.

THE Association was called to order pursuant to adjournment, with the President occupying the chair.

On motion of Dr. Emma Eames Chase, the privilege of the floor was extended to Dr. Grevers, of Amsterdam, Holland.

The Virginia State Dental Society, through their representative, Dr. T. H. Paramore, tendered an invitation to the Association to hold their next annual session in Virginia, consideration of which was, on motion, laid over till the time for selection of place of meeting.

There being no further miscellaneous business, reports of sections were next in order.

Dr. S. H. Guilford, chairman of Section II.,—Dental Education, Literature, and Nomenclature,—read a brief report, which was referred to the Publication Committee.

The first paper presented by the section is entitled, "The Specialization of our Preliminary Education," by R. H. Hofheinz, Rochester, N. Y. A brief abstract is as follows:

After reviewing briefly what education was supposed to mean in the past,—the education of the Middle Ages,—designed to form either young monks or young knights, the conceptions of Erasmus, of Sturm, Comenius, and others, Dr. Hofheinz spoke of the illumination thrown upon the problem of education by the doctrine of evolution, and the importance of natural aptitudes, and of spe-

cialization. A one-sided scientific education may become as harmful to a profession, based upon æsthetic and artistic training, as a one-sided technical training would be. This is recognized in all dental schools,—but has it been recognized in the preliminary training of the dental student?

Are the three years of the dental college course sufficient to train unskilled hands that have had no previous chance for development?

Preliminary education is bestowed upon the mind, while the executive functions of the physical system are ignored.

A student who has not developed some manual skill, under favorable conditions, at the age of eighteen, does not possess the physical requisites for a good dental operation. The student who is not naturally endowed with a reasonable amount of technical ability will never become the dental operator so much needed. Hence the necessity of the introduction into all secondary schools of drawing and constructive work. This would be a new departure, but new only because the schools have not been doing their duty by the pupils intrusted to them. The educational value of manual training has been established beyond all contravention. It aims to develop in the pupil powers of thought and expression, and to call out the executive powers, and give self-confidence in dealing with actual material. To whom does this apply more than to the future student of dentistry? Many dentists have been complete failures, owing to a total lack of constructive ability. Many things have been written about that have never been done by the writers. Public education in art is needed; the art-spirit should enter into everyday labor. The public or primary school should take account of the æsthetic faculty which belongs to the higher nature of the child. The essayist quoted from a number of eminent educators in proof of the fact that manual training does not interfere with academic advancement; on the contrary, those who have followed the former courses show added intelligence in comprehending what is brought to their notice, and have a wider range of thought. Preliminary education must adjust itself to the needs of the future, and nowhere is this more necessary than with the future dentist. His early training must have a more specific direction,—not at the expense of science, but for its benefit. Hand in hand with the training of the mind must be that of the hand and eyes. The intellectual culture of constructive art is a great mental discipline, a great moral discipline, leading to more exact action, to greater honesty,—for honesty is but the moral expression of exactness.

DISCUSSION.

In the discussion of this paper

Dr. Jas. Truman said he was glad that some one had the moral courage to denounce the inartistic operations which confront us daily, and which, as the essayist has demonstrated, show a total lack of æsthetic culture. A gold crown on a front tooth best illustrates this point.

Another statement made by the essayist that deserves thought is, that a young man, who has attained the age of eighteen years without the opportunity of acquiring manual dexterity, will rarely or never acquire the practical skill essential to the successful dental operator. *Dr. Truman* said that he had held this view for many years. He would like those who believe that the dental student should take a full medical course, after his preliminary high-school and college training, before entering the dental college, to consider for a moment what would be the age of that young man on beginning the study of dentistry, and what would be the probabilities as to his attainment of manual dexterity at that age. *Dr. Truman* considered this the most impressive question suggested by the paper.

Dr. E. V. Black said that he wished to accentuate the thoughts expressed by *Dr. Truman*. He was most heartily in accord with the expression of the necessity for acquiring manual training in early school-life; of learning to use the hands; to accomplish something, to produce something, to be useful. With all our boasted advancement there is yet much to be gained in the future, especially in the direction of manual skill. To develop that will be of lasting benefit to the dental profession, the mind and hand working together for good, for that which shall endure.

As to "a gold crown on a front tooth," there is no more certain mark of mental debasement. The only wonder is that any man can find patients willing to submit to such disfigurement, or that any man who has sufficient aspiration to seek an education in dentistry, and who has the skill and taste necessary to accomplish such a work of art, can be so debased as to employ it in such a position.

Dr. Geo. D. Sitherwood.—It is a fact well known that there comes a time in the life of every individual when he cannot learn to write. It takes years to train the hand to form the letters mechanically, and the training must begin early. It is no less true of the training of the hand of the skilful dentist. There is a growing

tendency to confine the study of dentistry to the dental college. Looking over the college announcements it will be seen that thirty or forty per cent. of the students have had no preceptor except "the faculty." They have had no preliminary training in a dental office, no opportunity of acquiring any manual skill previous to entering the dental college. It is time a halt was called in this direction. A graduate fresh from any college, no matter which, who has had only the opportunities offered during his college-life, will find himself deficient in skill when he undertakes his first piece of bridge-work, or his first crowns, if the faculty has been his only preceptor. They must have preliminary manual training before entering the dental college, and this should be acquired in the office of a competent preceptor.

Dr. Truman W. Brophy.—While I endorse much of what has been said by the preceding speakers, and heartily endorse the paper, I must dissent from the views of the last speaker, who apparently had in mind the conditions existing twenty years ago.

The young man who enters the dental college of to-day, where manual training is insisted upon, where such thorough, practical, technical work is done, can get as much benefit in three months in a dental school as he could do in a year in any dental office. The position taken by the last speaker is not well founded.

Dr. C. N. Johnson thinks there is danger in the increasing tendency towards specialization. Specialization tends towards narrow-mindedness. The mind should be broadened by culture, not narrowed by restricting it to a limited sphere. The man who works always with little things tends to become narrow-minded. The views of Dr. Sitherwood had his sympathy at one time, but the result depends largely on the preceptor, or on the college faculty. It is an actual fact that the first year of many a college student is spent in *unlearning* what he had acquired under a preceptor.

A visit to the dental schools, as they are now conducted, will correct many erroneous ideas on the subject of manual training. The older generation of dentists are usually sought as preceptors, but the methods in use in many such offices are not those taught in the dental colleges of to-day, but are rather those in vogue a quarter of a century ago.

Dr. Sitherwood.—I was discussing principles, not individuals.

Dr. Garrett Newkirk.—I was struck with the absolute correctness of the principle that unless a man develops mechanical skill early in life—before the age of eighteen, as was stated—he will not

be successful in the manipulative work of operative dentistry. Let a farmer's boy, who has been holding the plough-handles till he is sixteen years old, attempt, at that age, to learn to write his own name, how slowly and laboriously he will form each letter. His fingers are stiff and the finger-tips are hard, and he grasps the pen-holder as he would a hoe-handle. Then see the student who has cultivated his abilities: the muscles so uncontrollable by the one are under absolute control of the other; the movements are rapid, almost mechanical. A man must have a disposition to handle tools or he will never succeed in the practical work of dentistry. It used to be the fashion to study under a preceptor, but now the colleges prefer to take a boy who has had no such preliminary work and start him at once in technical work. The advances made along this line have been a revelation to me. I would suggest that Dr. Sitherwood visit the schools and note the technical work.

Dr. B. Holly Smith.—There is no doubt but that the boy should start early in his life's work, if he would be skilled in manhood. There should be early opportunity for the development of mechanical skill; the mind and hand should be developed and trained together. The old preceptor-system was all right when the preceptor himself was all right. I have in mind one young man who had gone through the school's course, and whom, by courtesy, I took into my office, and who said that he learned more in three weeks by my chair than he had learned in the three years of college life,—he learned how to do things as he saw me doing them. But under the old system, when the student was relegated to the laboratory, when he had charge of the vulcanizer and collected bills, his chances were not very good of becoming a skilled operator.

Dr. Hofheinz, in closing the discussion, said that he had nothing to add to what he had said in his paper, but would repeat his conviction that manual training should go hand in hand with academic training; that one would not interfere with the other, but would be found a great help, broadening the mind, and quickening the understanding; giving a young man an early chance of choosing his life-work.

The second paper presented by Section II. was entitled "Dental History a Part of the College Curriculum," by B. J. Cigrand, Chicago, an abstract of which is given:

Evidence of the progress of modern dental science is found in the ever-increasing interest manifested in historical research.

Lessons of wisdom for the future are to be drawn from the events of the past.

To the dental student the history of the progress of dental art and science must be fraught with the deepest interest. Hence the value of the labors of those who have sought to gather the fragmentary knowledge of dentistry in the past and weave it into a true history of the science.

There are at present six medical colleges which include in their course of instruction the study of the subject of medical history. The Illinois school of dentistry was the first dental school to create a professorship in dental history. The Paris Exposition offers a most opportune time for presenting a full and complete story of the growth and development of the dental profession in America. The work, if it is to be done at all, must be done before the present generation fades away; before this century closes. Dr. Cigrand has delivered a course of lectures on dental history in several dental colleges, and has found that students were greatly interested in the subject.

DISCUSSION.

In the discussion of the subject

Dr. Chas. McManus expressed his gratification for the interest shown in the subject by the essayist. Although in some respects the subject is dry, it should be a matter of interest to all students and practitioners of dentistry, and he hopes the present agitation of the subject may yield satisfactory results.

Dr. H. L. Ambler believes that the subject of dental history, if properly put before the profession, is capable of doing great good. We clamor for a higher standard, but the only way to grow is to have a history of the past. The medical profession prides itself upon its past, and points to Hippocrates, Esculapius, etc. If we would put ourselves on the same plane, we must do all we can as individuals, as colleges, as State societies, as national societies, to have prepared a correct history of our past. This means a great deal of work. Let each and every one gather up all he can and put it in the hands of the committee appointed by this National Association. It can never be done as a private enterprise, as it will require an immense amount of money; it is a huge task. We want to call the attention of both the public and the profession to the fact that we have a history; that it runs back three thousand years, and that we are proud of it. It is a good idea to have it in the college curriculum, and I am glad to learn that a movement has been started

in that direction. I think the time is ripe for all dental colleges to teach dental history, and to establish a chair upon this subject.

Dr. W. C. Barrett.—I am more than anxious to see a proper history of dentistry, but it must not include the many foolish traditions that have been handed down from the past, having no foundation in fact,—fables to please children. A proper history is a record of facts. The historian must be able to separate fact from fable. The truths of history must be taught in our schools.

Dr. G. V. Black.—In the medical schools medical history is taught in the fourth year. The students are referred to the collection of old books in which the record is to be found, and they are guided in their reading, but there is no one volume in which it is all written out. It is a study which offers many difficulties, but the reward is sure.

Dr. Cigrand, in closing the discussion, said that his paper was designed as an appeal to all to assist the committee by contributing such material as each might be able to gather. If each individual would feel that he had a personal interest in this matter, a great deal could be accomplished. We need a history, and we will have a history, though it may not be completed for years to come. The material is in existence, but much of it has yet to be discovered.

The third paper presented by the section is entitled "Dental Articulation and Occlusion," by Wm. Ernest Walker, Pass Christian, Miss.

The essayist urged the necessity for the continued use of the two words articulation and occlusion in denoting the relationship between the antagonizing surfaces of the teeth, restricting the use of the word occlusion to the indication of the positions of the teeth when the mouth is closed and at rest, the teeth coming together principally cusps to sulci. Articulation, as thus used, denotes the various relative positions assumed by the teeth in the lateral and protrusive excursions of the mandible. This interdental articulation is a very important consideration in the arrangement of cusps in prosthesis, in orthodontia, in contour operations, and in periodontal diseases.

A change in the nomenclature of this subject has been suggested and recommended, restricting the use of the word articulation to its strictly anatomical sense,—the relationship of the teeth to their alveoli; the word occlusion to be made to do service in denoting not only a true occlusion ("Occlusion: a closing; a shutting up," *Century Dictionary*), but also all the phases of contact between the

cusps of the upper and lower teeth in the various positions possible to the lower jaw.

That this use of the terms has not proved satisfactory to the profession at large was shown by the essayist, in the continued use of the word articulation with reference to the antagonizing surfaces of the teeth, by the best writers, not only in dental periodical literature, but especially by the authors of the different chapters in the "American Text-Book of Prosthetic Dentistry," quotations being given from the chapters by Drs. Essig, Burchard, Goddard, Molyneux, Ambler Tees, W. W. Evans, and A. H. Thompson.

Its use was also shown by Dr. E. S. Talbot, in his latest work, "Interstitial Gingivitis." Its continued use by members of the Academy of Stomatology (Philadelphia), of the Institute of Stomatology (New York), of the American Academy of Dental Science (Boston), of the Section of Stomatology of the American Medical Association, of the New York Odontological Society, and numerous other scientific bodies, as shown by reference to page and volume of the leading dental periodicals published in 1898 and 1899.

The sense in which the essayist would use these two words is that given them by Dr. W. G. A. Bonwill, in his classic paper, "The Laws Governing the Articulation of the Human Teeth." As they have been so long used in this clearly defined and specific sense, it would seem advisable to continue to use them in that sense, at least until two equally distinctive but better terms shall be adopted, by which to indicate the radically different phases of relationship assumed by the teeth when at rest, and during the function of mastication.

It is always undesirable to make radical departures from long-established usage unless very decided advantages are apparent. The necessity for reference to the alveolar articulation of the teeth being of comparative rarity, the cumbrous, compound term "dento-alveolar articulation" might serve sufficiently well to indicate that relationship, the single word articulation applying to the contact of those surfaces with which we are most frequently concerned.

It is, however, greatly to be desired that proper discrimination be made by those who have occasionally used the terms articulation and occlusion as synonymous.

Discussion of this paper was deferred until after the reading of the fourth paper offered by the section, an interesting report, by Dr. J. A. Chapple, Atlanta, Ga., of a decision rendered by the Supreme Court of North Carolina in December, 1863: a decision by which the

dental surgeon was declared the coequal, from a legal stand-point, with the physician. Owing to the lack of paper and other printing-materials at the time, and in the locality when and where this decision was rendered, it was never given newspaper publicity, and the record is to be found only in the annals of the Supreme Court of North Carolina.

This decision has a threefold significance:

1. That the dentist, in the full significance of the term, is a physician.

2. That, as such, according to Act of Congress, he is exempt from army service.

3. The physician under the law being exempt from jury duty, the dentist, being a physician, can also claim exemption, if it is not provided for by the respective States.

A fourth deduction is that the non-graduate dentist is not a physician, and cannot claim exemption under this decision, the judge having declared that "a regular graduated dentist is a physician." Dr. Chapple presented in full the decision "in the matter of Hunter," found in the 60th North Carolina Reports, Winston's, the decision having been given at Richmond Hill, December 3, 1863.

The question that arose was, Does the graduate dentist come under the definition of physician? The question being a new one, the case was adjourned and evidence taken as to the course of instruction in dental colleges, and the knowledge which it was necessary to acquire in order to obtain a diploma and practise with skill. The conclusion of the learned judge, from the depositions and the arguments filed, being found in the words: "I am satisfied that a regular graduated dentist is a 'physician.' . . . If a tooth has to be extracted, the 'surgeon dentist,' by his knowledge of 'physiology,' ascertains the condition of the system, and by his knowledge of 'materia medica' administers the necessary alternatives to put it in proper condition; by his knowledge of 'anatomy' he finds how the tooth is inserted in the jaw-bone, and knows what instrument will extract it with as little pain as possible and without injury to the bone, and the depositions state that frequently 'surgeon dentists' are called on to perform delicate operations on 'the facial parts' (the upper and lower jaw-bones), which require an intimate knowledge of the structure of the bones and the location of the arteries, veins, and nerves. In short, the teeth being more subject to decay and disease than any other part of the human body, I am

satisfied not only that regular, educated dentists are 'physicians,' but that the human family are much indebted to them for confining themselves to a 'specialty,'—that is, one branch of the profession, whereby that which was some years ago a mere mechanical art, has become a useful and important science. It is, therefore, considered by me that John W. Hunter be forthwith discharged, with leave to go wherever he will."

There was no discussion of this paper, and after a partial report from the Committee on Credentials, showing the registration of thirty-eight delegates, the Association adjourned to nine A.M.

The presentation, by Dr. Truman W. Brophy, of patients from Chicago, who had been operated upon at a very early age for cleft palate and harelip, was made the special order of business for eleven A.M., Wednesday.

(To be continued.)

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE Sixteenth Annual Session of the National Association of Dental Faculties was held in Niagara Falls, commencing Friday, July 28, 1899.

The following colleges were represented, as noted:

Birmingham Dental College, Birmingham, Ala.—T. M. Allen.

University of California, Dental Department, San Francisco, Cal.—A. A. d'Ancona.

Colorado College of Dental Surgery, Denver, Col.—J. S. Jackson.

University of Denver, Dental Department, Denver, Col.—A. H. Sawins.

Columbian University, Dental Department, Washington, D. C.—J. R. Hagan.

Howard University, Dental Department, Washington, D. C.—A. J. Brown.

National University, Dental Department, Washington, D. C.—A. D. Cobey.

Atlanta Dental College, Atlanta, Ga.—H. R. Jewett.

Dental Department of Atlanta College of Physicians and Surgeons, Atlanta, Ga.—Frank Holland, S. W. Foster.

Chicago College of Dental Surgery, Chicago, Ill.—Truman W. Brophy.

Northwestern University Dental School, Chicago, Ill.—Theodore Menges.

Indiana Dental College, Indianapolis, Ind.—George E. Hunt.

State University of Iowa, Dental Department, Iowa City, Iowa.—W. S. Hosford.

Louisville College of Dentistry, Louisville, Ky.—H. B. Tileston.

Baltimore College of Dental Surgery, Baltimore, Md.—M. Whilldin Foster.

University of Maryland, Dental Department, Baltimore, Md.—John C. Uhler.

Boston Dental College (Tufts College Dental School), Boston, Mass.—Chas. P. Thayer.

Harvard University, Dental Department, Boston, Mass.—Thomas Fillebrown.

College of Dental Surgery of the University of Michigan, Ann Arbor, Mich.—J. Taft, N. S. Hoff.

Detroit College of Medicine, Dental Department, Detroit, Mich.—G. S. Shattuck.

University of Minnesota, Dental Department, Minneapolis, Minn.—W. P. Dickinson.

Kansas City Dental College, Kansas City, Mo.—J. D. Patterson.

Western Dental College, Kansas City, Mo.—D. J. McMillen.

Marion-Sims College of Medicine, Dental Department, St. Louis, Mo.—J. H. Kennerly.

Missouri Dental College, St. Louis, Mo.—A. H. Fuller.

University of Omaha, Dental Department, Omaha, Neb.—A. O. Hunt.

University of Buffalo, Dental Department, Buffalo, N. Y.—William C. Barrett, R. H. Hofheinz.

New York College of Dentistry, New York City.—Faneuil D. Weisse.

New York Dental School, New York City.—John I. Hart, Roderrick M. Sanger.

Cincinnati College of Dental Surgery, Cincinnati, Ohio.—G. S. Junkerman, W. T. McLean.

Ohio College of Dental Surgery, Cincinnati, Ohio.—H. A. Smith.

Western Reserve University, Dental Department, Cleveland, Ohio.—H. L. Ambler.

Ohio Medical University, Dental Department, Columbus, Ohio.
—Otto Arnold.

Pennsylvania College of Dental Surgery, Philadelphia, Pa.—
Wilbur F. Litch.

Philadelphia Dental College, Philadelphia, Pa.—S. H. Guilford.

University of Pennsylvania, Dental Department, Philadelphia,
Pa.—James Truman, Edward C. Kirk.

Pittsburg Dental College, Pittsburg, Pa.—Walter H. Funden-
burg.

School of Dentistry, Central Tennessee College, Nashville,
Tenn.—G. W. Hubbard.

University of Tennessee, Dental Department, Nashville, Tenn.
—L. G. Noel.

Vanderbilt University, Dental Department, Nashville, Tenn.—
Henry W. Morgan.

*Tacoma College of Dental Surgery (North Pacific Dental Col-
lege), Portland, Ore.*—George H. Chance.

Milwaukee Medical College, Dental Department, Milwaukee,
Wis.—George V. I. Brown.

Royal College of Dental Surgeons of Ontario, Toronto, Canada.
—J. B. Willmott.

The treasurer reported that the Dental Department of Tennes-
see Medical College, of Knoxville, Tenn., was no longer in exist-
ence, having been absorbed by another school.

The Tacoma College of Dental Surgery, having removed to
Portland, Ore., was given authority to change its name to North
Pacific Dental College.

The trustees of Boston Dental College accredited Dr. C. P.
Thayer as delegate to explain to the Association that they had trans-
ferred the institution, with all its appurtenances, to Tufts College,
and to request that the Tufts College Dental School be permitted
to make application for membership at this meeting. On motion it
was ordered that Tufts College Dental School be accepted as a con-
tinuance of the old college, and that the change of name be ap-
proved.

The applications for membership of the following schools,
having been reported as regular by the Executive Committee, lie
over for one year for final action:

*Medico-Chirurgical College of Philadelphia, Dental Depart-
ment, Philadelphia, Pa.*

Central College of Dentistry, Indianapolis, Ind.

College of Dentistry, University of Southern California, Los Angeles, Cal.

Illinois School of Dentistry, Chicago, Ill.

Washington Dental College and Hospital of Oral Surgery, Washington, D. C.

Keokuk Medical College, Dental Department, Keokuk, Iowa.

The Committee on Text-Books reported recommending that the following be adopted: "Anatomy and Histology of the Mouth and Teeth," by I. N. Broomell, D.D.S.; "The Practice of Dental Medicine," by George F. Eames, M.D., D.D.S.; "Comparative Dental Anatomy," by A. H. Thompson, D.D.S. (recommended last year in proof); "Methods of Filling Teeth," second edition, by R. Ottolengui, M.D.S.

The committee had also examined "Chemistry and Metallurgy Applied to Dentistry," by Vernon J. Hall, Ph.D.; and while admirable, and containing many excellent features, the committee believe it unwise to recommend it as a text-book, inasmuch as there are already two excellent works on the same subject on the list.

Of "Interstitial Gingivitis, or so-called Pyorrhœa Alveolaris," by Eugene S. Talbot, M.D., D.D.S., the committee reported that it contained evidence of laudable and extensive research, but the subject is still a matter of so much controversy and diversity of opinion as to make undesirable a text-book upon it at the present time.

The committee also suggested the removal of Clifford's "Manual of Recitations," adopted in 1892, and Burchard's "Compend of Pathology," adopted in 1897.

The following resolutions, laid over under the rules from 1898, were adopted:

Offered by Dr. Allen:

Resolved, That it is the sense of this Association that the present method of bestowing scholarships is no longer called for, and is detrimental to the best interests of the profession, and that hereafter no college of this Association shall grant either free or beneficiary scholarships not absolutely made obligatory in their charter.

Offered by Dr. Barrett:

Resolved, That it shall be the duty of the secretary of this Association to present at the opening of each annual session a list of the colleges, members of this Association, who have been unrepresented for two years, that proper action may be promptly taken.

The resolutions of Drs. Allen and d'Ancona concerning the attendance of students were substituted by the following, offered by Dr. Willmott, which was adopted:

Resolved, That students in attendance at colleges of this Association, to obtain credit for a full term, must be and remain in attendance until the close of the session.

In accordance with this action, Rule 4 was amended to read as follows:

4. In cases where a regularly matriculated student, on account of illness, financial conditions, or other sufficient cause, abandons his studies for a time, he may re-enter his college at the same or a subsequent session, or where, under similar circumstances, he may desire to enter another college, then with the consent of both deans he may be transferred.

Rule 9 was amended to read as follows:

ADMISSION OF UNDERGRADUATES OF MEDICINE.

9. Undergraduates of reputable medical colleges, who have regularly completed one full scholastic year of a six months' term and passed a satisfactory examination in the studies of the freshman year, may be admitted to the junior grade in colleges of this Association, subject to other rules governing admission to that grade.

The Committee on Conference with the National Association of Dental Examiners reported, as the result of several conferences held with a similar committee from the Examiners' Association, that an agreement had been reached concerning the matters which had been in controversy between the two associations for several years. The report was adopted. [The basis of the agreement, with some account of the difficulties referred to, will be found at the end of this report.]

The following resolution was unanimously adopted:

Resolved, That the thanks of the National Association of Dental Faculties are due to the Chicago College of Dental Surgery for the courage and persistence with which it has maintained what we believe to be a correct principle, and that we regard the placing as "unrecognized and disreputable" in the newspapers and otherwise of one of the oldest and best of our professional teaching institutions an injustice that demands complete rectification.

Dr. Barrett offered the following, which were adopted:

Resolved, That the commonly accepted Code of Ethics regulating the conduct of practitioners in their relations with other practitioners be ap-

proved, and made obligatory upon the dental colleges of this Association in their relations with other colleges.

Resolved, That the section of the Code which refers to public advertisements be interpreted to forbid the advertising of the infirmaries of dental colleges in any manner that might be construed to be unprofessional if done by a practitioner.

Resolved, That as dental colleges should in every practicable manner impress the importance of ethical conduct upon their students, and should themselves set a good example in this particular, their public advertisements should be confined to a simple statement of the location of the schools, the date of opening and closing, with any other really essential facts, all details being reserved for the annual announcement, which itself shall not violate the usually accepted ethical tone.

Dr. Taft offered the following:

Resolved, That a commission, consisting of three persons, be appointed, whose duty it shall be to take cognizance of, investigate, and advise with any parties contemplating the establishment of a new college or the reorganization of an old one.

In the performance of the duties of this commission it shall be competent to take into consideration the following points,—viz.:

The consideration of any proposed new dental college; taking into account all the circumstances that attach to it; the motive that prompts such an organization; the need for it; the proposed locality; the character and ability of those who propose to conduct it; the sufficiency of the resources that may be available for its establishment, and whether, on the part of the promoters, there is a just appreciation of that which is required for such an institution.

The attainment of full knowledge on these points would enable the commission to advise wisely.

It would be the duty of this commission to report to this body at each annual meeting.

The resolution was adopted, and it was ordered that the commission be elected with the other officers.

The following amendment to the constitution was adopted:

Change Article V. to read as follows:

ARTICLE V. The Executive Committee shall consist of five members, three of whom shall be elected annually: the two receiving the higher number of votes shall hold office for two years each. The Executive Committee shall have power to designate the time and place of meeting, make preparations for same, and transact such other business as usually devolves upon such committee. That five members be elected this session, the two receiving the higher number of votes to serve for two years, the other three for one year each.

On motion of the Executive Committee, it was ordered that colleges making application for membership in this body shall have

present a copy of their annual announcement, and that a duly authenticated representative of the school be present at the meeting; without which the application shall not be considered.

It was decided that the change from six to seven months' terms, which goes into effect with the session of 1899-1900, should apply to all students in colleges of the Association, even though the students may have previously attended under the six months rule.

On motion of Dr. Barrett, it was ordered that a committee on law, to consist of three members, be elected to serve as a standing committee, which shall be authorized to levy such assessments upon the members of the Association as may be necessary for the payment of past legal expenses and such as may accrue in the future in the suppression of the issue of fraudulent diplomas. Such assessments to be lodged with the treasurer, and paid upon the order of the Committee on Law. It was also ordered that all legal matters which may arise in connection with the National Association of Dental Faculties shall be referred to this committee.

The Committee on Foreign Relations, in concluding the report of its work for the year, offered the following resolutions, which were adopted:

Resolved, That the Foreign Relations Committee be instructed to take any steps which they may deem advisable for the putting an end to the issuing of fraudulent and irregular degrees, and to this end are authorized during the coming year to use any funds in the treasury of the Association upon the approval of the Law Committee.

Resolved, That the European Advisory Board of the Foreign Relations Committee be and is hereby invited each year to send a delegation to attend the annual meeting of this Association, and that such delegation be accorded seats in the meetings of the Association, with all the privileges of debate.

Resolved, That no student coming from Europe shall be received by any member of the Association until his credentials shall have been approved by the members of the European Advisory Board for the country from which he claims to come.

Resolved, That the Committee on Foreign Relations be authorized to appoint advisory boards for countries outside of Europe, whenever in their judgment it is advisable to do so, and report any such action at the next succeeding meeting of this Association.

Resolved, That the Foreign Relations Committee be given jurisdiction in all foreign American dental educational matters, subject always to the approval of the National Association of Dental Faculties, to which a full written report shall be submitted annually.

Following are the members of the European Advisory Board, so far as appointed:

Great Britain.—Wm. Mitchell, W. E. Royce, and B. J. Bonnell.
Holland and Belgium.—J. E. Grevers, Ed. Rosenthal, and C. van de Hoeven.

Denmark, Norway, and Sweden.—Elof Förberg.

Germany.—W. D. Miller, C. F. W. Bödecker, and — Hesse.

Italy and Greece.—Albert T. Webb, Tullio Avanzi, and A. V. Elliott.

France.—J. H. Spaulding, I. B. Davenport, and G. A. Roussel.

Spain and Portugal.— — — Portuondo, Florestan Aguilar, and — Thomas.

Switzerland and Turkey.—L. C. Bryan, Theo. Frick, and Paul Guye.

Japan, China, and Corea.—Louis Ottogy.

Australia and New Zealand.—Alfred Burne.

The following resolution, offered last year, was again laid over for another year:

Offered by Dr. Hosford:

Resolved, That a four years' course in a reputable college leading to the degree of A.B., Ph.B., or B.S., or four years of biological work, be accepted as one years' credit in the colleges of this Association, subject to other rules governing admission to second year grade.

Resolved, That students matriculated in both a collegiate and dental department of a university, having completed the work of the first year in dentistry during the four year collegiate course, may, on graduation with collegiate degree, be given full credit for one year in colleges of this Association.

The following, offered by Dr. Foster, was referred to the Executive Committee, to be reported upon next year:

Resolved, That when a student fails in any part of the requirements for obtaining his final degree, such student must hold over till the next regular course, during which time he may re-enter and remove such conditions by completing his work, and can only apply for his degree at the close of term, as announced in the catalogue of such school.

The following resolutions lie over under the rules till next year:

Offered by Dr. Barrett:

To change Rule 1 to read as follows:

PRELIMINARY EXAMINATIONS.

1. The following preliminary examination shall be required of students seeking admission to colleges of this Association:

(a) The minimum preliminary educational requirement of colleges of this Association, after the session of 1901-1902, shall be a certificate of en-

trance into the third year of a high school, or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction.

(b) Nothing in this rule shall be construed to interfere with colleges of this Association that are able to maintain a higher standard of preliminary education.

Offered by Dr. Weisse:

Resolved, That Rules 8, 9, and 10 of the Code of Rules be rescinded, and the following be substituted therefor:

That advanced standing to the junior or senior classes of institutions of this Association shall only be upon certificate of one or two sessions' attendance, respectively, in an institution belonging to this Association.

Offered by Dr. Truman:

Resolved, That members of this Association violating the rules of this body shall, upon conviction, be fined not less than one hundred dollars for each offence, or be subject to censure, suspension, or expulsion, at the pleasure of the Association.

Offered by Dr. Barrett:

Resolved, That the Executive Committee be instructed that, except under what they shall decide to be unusual or extraordinary circumstances, and which in their report they shall detail to the Association, they shall not report favorably any application for the admission of a new college in the following instances:

1. When there has not been actually secured and bought or leased for a term of not less than three years, and fitted up with all required equipments, a sufficiently commodious and convenient building, entirely adequate to the needs of not less than one hundred students. Such equipment shall include not only the laboratories, infirmaries, etc., with proper chairs, benches, and all apparatus required for complete practical dental instruction, but the rooms and fittings necessary for scientific training, with apparatus and equipments necessary for the proper teaching of bacteriology, histology, microscopy, chemistry, and such other scientific studies as should form a part of an advanced dental curriculum of study.

2. When the character and attainments of its faculty, which must already have been named, and a list of the members of which with the respective positions they are to occupy shall be embodied in the application presented, are not such as to give assurance that the school will be conducted in a manner to reflect credit upon the dental profession, and to insure complete and adequate instruction in all branches of a broad dental curriculum of study.

3. When the proposed dental college or department is evidently and unmistakably intended primarily for the purpose of sustaining or strengthening another existing institution with which it is to be allied.

4. When the city or town in which such college is to be located already contains a college, or colleges, for dental teaching, of acknowledged effi-

ciency, liberal character, and ethical standing, sufficient in their opinion for the promotion of the best interests of dentistry and the dental profession.

Offered by Dr. Guilford:

Resolved, That while examinations for progress should continue to be held annually upon the subjects taught during the year, no final examinations shall be held until the close of the third year.

Dr. Taft, from the Committee on Curriculum, submitted as the report of his committee the following:

SCHEDULE OF STUDIES.

FIRST YEAR.	Hours Per Week.	SECOND YEAR.	Hours Per Week.	THIRD YEAR.	Hours Per Week.
Anatomy and Dissection	2	Anatomy, Regional . .	1	Therapeutics	1
Physiology	2	Anatomy, Comparative .	1	Pathology	1
Chemistry, Inorganic .	2	Physiology	2	Surgery, General . . .	1
Chemistry, Laboratory .	4	Chemistry, Organic . .	2	Surgery, Oral	1
Dental Anatomy	2	Chemistry, Laboratory .	4	Jurisprudence	$\frac{1}{2}$
Prosthetic Technic . . .	10	Metallurgy, Didactic . .	1	Orthodontia, Didactic	1
Histology, Didactic . .	4	Metallurgy, Laboratory .	2	Orthodontia, Practi- cal	1
Histology, Laboratory .		Materia Medica	1	Operative Dentistry .	2
Materia Medica		Operative Technic . . .	4	Prosthetic Dentistry .	2
Comparative Anatomy .		Bacteriology, Didactic .	4	Electricity	
		Operative Dentistry, Didactic	2	Ethics	
		Orthodontia Technic . .	1	History	
		Pathology	2		
		Orthodontia, Didactic .			

INFIRMARY.

SECOND YEAR.	Hours Per Week.	THIRD YEAR.	Hours Per Week.
Prosthetic Dentistry	5	Prosthetic Dentistry	6
Crown- and Bridge-Work	3	Operative Dentistry	15
		Crown- and Bridge-Work	4

The following were elected officers for the ensuing year: Jonathan Taft, President; B. Holly Smith, Vice-President; J. H. Kennerly, Secretary; Henry W. Morgan, Treasurer.

Executive Committee for Two Years.—S. W. Foster, J. B. Willmott; *for One Year.*—H. B. Tileston, Theo. Menges (chairman), S. H. Guilford.

Ad Interim Committee.—W. T. McLean, J. D. Patterson, W. S. Hosford.

Commission on Proposed New Colleges.—Truman W. Brophy, Edward C. Kirk, Albert H. Fuller.

Committee on Law.—A. O. Hunt, Henry W. Morgan, W. C. Barrett.

The newly elected president appointed the following commit-

tees: T. M. Allen, W. S. Hosford, W. P. Dickinson, G. S. Shattuck, J. G. Templeton, Committee on Schools; A. J. Brown, John I. Hart, Thomas E. Weeks, Edward C. Kirk, Thomas Fillebrown, Committee on Text-Books; W. C. Barrett, J. D. Patterson, T. W. Brophy, S. H. Guilford, H. W. Morgan, Committee on Foreign Relations; N. S. Hoff, G. V. I. Brown, Committee to Secure Papers to be Read at the Next Annual Meeting; S. H. Guilford, W. F. Litch, N. S. Hoff, A. H. Fuller, C. L. Goddard, Committee on Curriculum.

The Executive Committee reported that it had decided to adopt the suggestion of Dr. Willmott to convene the next meeting on the day of the adjournment of the National Dental Association, at the same place.

Adjourned to meet at Old Point Comfort, Friday, June 29, 1900.

An important fact in connection with the meeting of the National Association of Dental Faculties was the presence of three of the members of the European Advisory Board of the Committee on Foreign Relations,—Drs. Lyman C. Bryan, of Basel, Switzerland; John E. Grevers, of Amsterdam, Netherlands; and William Mitchell, of London, England.

Dr. Grevers, in speaking of the reception to advanced standing of students from foreign countries, probably struck the key-note of the entire situation. He was impressed, he said, with the idea that the foreigner comes to this country to study dentistry for one of two reasons: First, as a graduate, or as one having fulfilled the requirements in his own country, who desires to still further develop his manipulative ability by the acquirement of American methods; or, second, because he cannot fulfil the requirements in his own country, and hopes to secure something here which will enable him to return home and practise. So that if the applicant from a European country is not supplied with the proper certificates the colleges should be cautious about receiving him to advanced standing.

The proceedings of the late meeting were varied by two pleasant, albeit unusual, incidents.

The first of these was a trolley ride of the members of the Association and their friends to Buffalo, twenty-five miles away, and return, as the guests of the Dental Department of the University

of Buffalo. Arrived at Buffalo, they were taken to the college building, where an ample collation was served, accompanied by several felicitous speeches. The various departments of the college were then inspected and pronounced good, after which the party again boarded the trolley cars and were taken to view the grounds where the Pan-American Exposition is to be held two years hence. Then came the return to Niagara Falls, which was accomplished without incident and without fatigue, every one expressing his gratification over the outing.

The second was of the same nature, but involved a visit to a foreign land. The Royal College of Dental Surgeons of Ontario invited the members of the Faculties Association and also those of the National Association of Dental Examiners to visit the college and view the city of Toronto. In response about seventy-five persons took the train at Niagara Falls for Lewiston, where they boarded the steamer for the journey across Lake Ontario to Toronto. Arriving here, a short walk brought them to McConkey's, where a fine collation was served and appropriately disposed of. Tally-hos and carriages then conveyed the party to various points of interest in the city, among others Parliament House, where they alighted and spent a short time admiring its beauty of architecture and internal arrangement and fittings. A short drive brought them to the Royal College of Dental Surgeons of Ontario, where they were assembled in the main lecture-room, and speeches of felicitation and good-will followed; after which the visitors circulated through the building, inspecting the equipment of the college and having explained to them the methods of instruction in various branches. It was the universal opinion that the school was admirably equipped for the systematic instruction of students of dentistry. The entrance to the college was tastefully draped with the flags of Great Britain and the United States. From the college the party proceeded to the Foresters' Temple Café, where a second collation was served; after which they were driven to the steamboat landing. As the vessel moved off three cheers for the Royal College of Surgeons were given with a will. The return journey was made without mishap, and the excursionists unanimously declared they had had one of the most delightful outings of their lives.

The members of the dental profession will be glad to learn that the differences existing for some years between the National Asso-

ciation of Dental Faculties and the National Association of Dental Examiners have been reconciled. These differences have been the cause of much friction between the two bodies.

The cause of the trouble was the refusal of the colleges to accept various rules which have crystallized into what is known as Rule 8 of the Code of Rules, Sections 1 and 2, of the Examiners' Association, because the colleges were not consulted in its framing.

The attempted enforcement of this rule recently led to litigation in the State of Wisconsin. The State Board of Dental Examiners of that State refused to admit to registration the diplomas of the Chicago College of Dental Surgery, the Northwestern University Dental School, the Pennsylvania College of Dental Surgery, the Ohio Medical University, Dental Department, the Philadelphia Dental College, and others, on the ground that they did not in their preliminary examination come up to the standard established by Rule 8, and demanded that graduates of these institutions presenting diplomas for registration should submit to examination by the board as to their qualifications to practise dentistry.

This contention of the board was resisted by a graduate of the Chicago College of Dental Surgery, who brought mandamus proceedings to compel the board to accept his diploma. The board moved to quash the proceedings, which motion was denied by the court, with leave to the board to file its answer. The answer was filed, and the case was in that condition at the time of the meeting of the two associations at Niagara Falls on the 28th of July, 1899.

With a view to the adjustment of the difficulty committees of conference were appointed by the two bodies, which, after going over the matters in dispute, agreed on the side of the National Association of Dental Examiners to recommend that Rule 8 be rescinded; that all colleges having membership in the National Association of Dental Faculties be placed upon the list of recognized schools, and that all litigation be withdrawn; and on the side of the National Association of Dental Faculties that a new rule governing the preliminary requirements for admission to the college courses should be adopted.

This action was ratified by the Associations. The Examiners' Association adopted a new Rule 8, Sections 1 and 2 of which read as below, the remainder of the rule being substantially as before:

Rule 8, new Sections 1 and 2:

"SECTION 1. Colleges desiring recommendation to the State boards by the National Association of Dental Examiners shall make application for

such recommendation through the Committee on Colleges, on blanks provided for that purpose. This rule to apply only to schools making application to the National Association of Dental Examiners for recommendation and such schools as may be dropped.

"SECTION 2. The following preliminary examination shall be required of students seeking admission to colleges recommended by this Association. The minimum preliminary educational requirements of colleges of this Association for the session of 1900-1901 shall be a certificate of entrance into the second year of a high school or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction, as adopted by the State Board of Missouri."

The Faculties' Association adopted the following rule governing the preliminary educational requirements of students:

"The minimum preliminary educational requirement of colleges of this Association for the session of 1900-1901 shall be a certificate of entrance into the second year of a high school or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction.

"Nothing in this rule shall be construed to interfere with colleges of this Association that are able to maintain a higher standard of preliminary education."

The cause of friction being removed, the disputes which have arisen, there is every assurance, will be speedily adjusted, and the two bodies will thereafter work in harmony.

Editorial.

THE DENTAL PROTECTIVE ASSOCIATION.

THE recent decision of Judge Townsend, in the United States Circuit Court of New York, in favor of the International Tooth-Crown Company, has elicited wide interest in the dental profession, perhaps more than it intrinsically deserves, but it has awakened dentists from a lethargy that has held them too long; and if it has no other value, it will show, as never before, the folly of neglecting an organization that has for a series of years protected them without regard to membership.

The years that have elapsed since the contest over the use of vulcanized rubber in plates has caused dentists to forget that experi-

ence, and they have apparently settled down to the belief that **never** again would there be a repetition of that disagreeable period. That they have been rudely awakened by the shock of this recent decision is **not** to be regretted.

From the reports that come to us, it is evident that the New York dentists are being pressed severely, and are being forced to pay the International Tooth-Crown Company large sums of money. If the dentists of that State had given but a small proportion of these sums to the Dental Protective Association, they would not only have been richer in their bank accounts, but would have in part enabled that organization to do more effective work. What is true of New York will be equally true of every State, and the dentists of the country may as well make up their minds to adopt one of two courses,—either to pay for all crowns inserted during the life of the patents held by the company, also pay for a license, and, in addition, become the willing slave of a corporation, or they must become part of the Dental Protective Association. There can be no half-way course.

There has been much said and written prejudicial to the Protective Association by those not connected with it and, apparently, as an excuse for not becoming part of it. They will now have the opportunity of transferring their prejudice to a party whose interests lie diametrically in opposition to their own and those of the dental profession.

It is one of the anomalies of the human mind that it so frequently turns and rends those who seek to help. The history of humanity is full of this kind of ingratitude, and will continue to be full of it as long as the race exists on the earth. While this is true, it is none the less discouraging to find this feeling active in professional circles. The individual who sacrifices himself that the profession may advance through his efforts, becomes the target for abuse. The dental colleges that have made the dental profession have had to undergo a continual storm of criticism, degenerating oftentimes into positive abuse and slander. The Dental Protective Association organized to act as a shield against the encroachments of monopoly, has been met first by an apathetic indifference, and finally ending in false representations of the one man who has borne the burden of this organization from the beginning. Charges have been made of misappropriation of funds; of using the Dental Protective Association to develop a commercial enterprise in which he was interested. That these charges have had no foundation in

fact, the reports of the Auditing Committees of both the American and National organizations fully testify; yet, in the face of these official statements, these charges have been repeated and re-repeated until many worthy men have felt that to rely on the Dental Protective Association was a dependence upon a support that would fail them in the hour of trial. The fact, ever present, that dentistry had been protected through a long series of years counted for nothing, and rather than aid in this protection they would take their chances outside of the organization, selfishly trusting that they would be protected by decisions of the courts procured by the Protective Association through a great expenditure of time, labor, and money. The time has now arrived when this protection will be withdrawn from this class, and all those outside of the Dental Protective Association will be forced to bow to the demands of the International Tooth-Crown Company. The chairman of the Dental Protective Association says in a recent editorial: "We speak advisedly when we state that every practitioner who unites with this organization will be taken care of and be protected against any claims for royalty." This entirely shuts out, and very properly, all those who are not in membership or do not immediately propose to avail themselves of the protection afforded by this organization.

The attitude of dentistry towards the Dental Protective Association has not been one to be commended; and by the course pursued much has been lost, not only in protection, but in that broader relation of interest,—true professional unity.

While it may be the eleventh hour, it is not too late to form a united front to oppose the arch-enemy of our household. If this be done promptly, there will soon be an end to the demand of these patent speculators.

Had this united front been in existence during the rubber controversy, Bacon could never have accomplished the results he achieved. Let those who do not wish to be placed in the same humiliating position of the dentists of that period, at once take measures to have their names enrolled, and by thus doing they will have accomplished a twofold object,—protection for themselves and will have given an added dignity to their profession.

THE REFUSAL OF WISCONSIN.

THERE was a general feeling of satisfaction felt, at the recent meeting of the National Association of Dental Faculties, that at last a harmonious settlement had been reached with the National Association of Dental Examiners, and this feeling at Niagara has been reflected upon the profession, and, as far as the limited time since that meeting has permitted, there has been a general response of satisfaction with the result.

It was, therefore, with deep regret that the Wisconsin Board of Dental Examiners has seen fit to refuse to be bound by this settlement, and has determined upon a course that must, if persisted in, intensify the spirit of antagonism that was supposed to be happily settled for all future time.

It was this hope that influenced the majority of the members of the Association of Faculties to abstain from any legislation that would seem, in the least degree, to lessen the harmony existing between the two national bodies.

The fear existing in the minds of the few that there might be State Boards that would refuse to endorse the action of the National Association of Dental Examiners led to an effort to have a standing Committee on Law, prepared to meet all such contingencies. The wisdom of this is now made evident by the repudiation of Wisconsin of this settlement and an expressed determination not to withdraw litigation, but to permit the matter to be settled in the higher court. All this is exceedingly discouraging, for if the example set by this State is followed by others, it means a renewal of the legal warfare that can only end in injury to all concerned.

From recent information there is a slight hope that Wisconsin will review its decision and honorably retrace its steps and fulfil the promise made at Niagara in the presence of the two contracting parties.

If this be not done, there can be but one course for the National Association of Dental Faculties to pursue, and that is, to resist the encroachments of this board, and others that propose to follow a similar course, to the last legal extremity.

The colleges of this country have a duty to perform to those who have received their diplomas, a duty that cannot be laid aside. The graduated students have fulfilled their portion of the contract, and it remains for the colleges to do theirs.

It was thought at the Niagara conference that the National Association of Dental Examiners possessed a controlling power over the State Boards represented, and while these were comparatively few compared with the States possessing laws governing the practice of dentistry, it was nevertheless thought that, even with those outside of its direct influence, there would be a moral effect which would result in harmonizing all differences. The first response to that agreement came from Wisconsin, and seems to dispel this illusion. Within a month after the adjournment of these two contracting bodies this State repudiates its authority, and another—New Jersey—has resigned membership. Thus the dental colleges are practically where they were prior to the Niagara Falls conventions.

While it would be pleasant to feel that the National Association of Examiners represented the various State Boards of the country, the facts warrant the assumption that it represents but a small portion of the States, and that it seems incapable of controlling these so absolutely that the Faculties Association can rely upon it for protection. In stating this it is recognized that the worthy men who assembled at Niagara are not to blame for this state of affairs. They acted the noble part, but it must be evident to them, as it is to others, that power did not exist in the Association of Examiners to fulfil their part of the contract.

It is with no wish to disturb the amicable relations supposed to have been established at the recent meeting, but it becomes a duty to warn State Boards that as the olive branch was honestly offered and accepted, and if the covenant which it represents be broken, as it is feared it may be, there can be but one result, and that continued litigation. *The colleges must protect their diplomas.* They cannot consent to permit outside parties, however panoplied with political power, to dictate to them in the manner attempted. The effort must be resisted, if it requires the combined power of the colleges to accomplish it. While this is true, it is hoped that wise counsels will prevail, and that the colleges may not be obliged to accept the gage of legal battle, but better that than a tame servility to a class of men whose interest in dental education may equal the police powers they possess to annoy and hinder its progress. If Wisconsin can find a way out of this difficulty, peace may rest within our borders; but if not, the faculties of the various colleges may rest assured that lasting peace can only be secured by a determined war upon all obstructionists, and that this can only be accomplished by a united and determined effort.

THE JUNE MEETING AT OLD POINT COMFORT.

THE National Dental Association, at its recent meeting at Niagara, adjourned to meet at Old Point Comfort during the last week in June, 1900. This change of time was made so that the annual meeting might not interfere with the prospective visit of many to the International Dental Congress, to be held at Paris during the Exposition. This was the proper course to take, but why confine the change solely to the present year?

It has been long evident to many that the selection of August as the dental convention period has been a mistake. It is the most uncomfortable portion of the year, and is at a time when the tired worker desires and needs absolute rest, mental and physical. The result is that many of the best men in the profession will not take part in the national gatherings, preferring to sacrifice professional interests to physical and mental needs. Those who unselfishly make the sacrifice generally do it at a loss in both directions.

This departure from a time-honored custom may open the door to a permanent change; if so, it will be a valuable experience. The mistake has been made in selecting the last of June. This period is usually the hottest experienced during the year upon the Atlantic coast, while the early part of June is generally the pleasantest period.

The time is none too long to prepare for this gathering. It would be discouraging to have the meeting fall far behind the one held at Niagara, but we have faith in the energy of the president and his co-workers, and do not question but that the national meeting at Old Point Comfort will gather many not often seen at these conventions. To effect this, however, a programme worthy the occasion must be provided.

DEATH OF DR. W. G. A. BONWILL.

It is with profound regret that we have to announce the death of this distinguished worker in our profession, which took place September 24, 1899, after an illness of some seven weeks.

Further notice of his life-work must be deferred until our next issue.

The dental profession loses one of its most active and original workers, and the writer a friend of many years.

CORRECTION.

ON page 116 of the February issue of this journal is a report of Dr. Howard E. Roberts's remarks at the Academy of Stomatology. He is made to say, "A small disk of thin copper used with water or oil will cut as perfectly as a diamond disk." This should have been, "water or oil and fine emery."

Bibliography.

INTERSTITIAL GINGIVITIS; OR, SO-CALLED PYORRHOEA ALVEOLARIS. By Eugene S. Talbot, M.D., D.D.S., Professor of Dental and Oral Surgery, Northwestern University, Woman's Medical School; Honorary President of the Dental Section of the Tenth International Medical Congress, etc. With Seventy-three Illustrations. The S. S. White Dental Manufacturing Company, Philadelphia, 1899.

The disease of the oral cavity, known as pyorrhœa alveolaris, has received more extended examination than any of the pathological conditions coming under the care of the dentist, and yet, at the present time, we are afflicted with more diverse sentiments as to its etiology and treatment than with any other lesion affecting the gingival border, and, apparently, we are as far from arriving at a decisive opinion as were the writers of the last century.

It is, therefore, with peculiar satisfaction that this work of Dr. Talbot is welcomed, for whatever opinions may be held as to his conclusions, no criticism can justly be made upon the methods pursued. These have been in the direction of true scientific research, evolving no theory unless based on demonstrated facts.

The labor and expense devoted to this should, and doubtless will, receive the highest commendation. The author has endeavored to eliminate his personal opinions by "having researches made by more than one observer." This is a departure from general practice, and it seems to the reviewer worthy of imitation by those who aim to reach correct results.

The author has added another name to the already extensive list,—*"interstitial gingivitis."* This does not seem to the re-

viewer to be any more appropriate than others have suggested to take the place originally given the disease. The reason given by the author for adopting this name is, "that the disorder is a local inflammatory condition of the gums." If this could be accepted, the name given would seem peculiarly appropriate, but clinical observation has failed to confirm this conclusion, and, in the opinion of the reviewer, pyorrhœa alveolaris holds but a limited relation to gingivitis; in fact, in the large majority of cases, the inflammatory condition of the gums, where this exists, is entirely of a secondary character. Hence the name, as a descriptive title, seems quite as much a failure as the many others sought to be fastened upon it. The old name, while equally defective, may, therefore, be allowed to retain its position, all the more that it is thoroughly understood.

The extensive series of microphotographs deserve especial praise, for they exhibit fairly well the results of the investigations made on lower animals, principally upon dogs. While this form of illustration is measurably defective in that the pictures are not always clear, they yet remove entirely the personal equation applicable to all drawings.

On page 46 the author heads a sub-chapter with "Do Glands exist in the Mucous and Peridental Membranes?" This important question, which Black first endeavored to answer, remains still a disputed question. The author summarizes an answer to his query by stating that "Black has attempted to demonstrate that glands exist in the structure, and that the cells last mentioned are glands. Black lays down as a *sine qua non* of a gland that there should be an opening to the surface. He has made an attempt to demonstrate such an outlet, but the figure does not show clearly that the glands empty into the duct or have an exit at the surface. These bodies, however, not only fail (like the ductless glands) in this particular, but in more important characteristics of glands. They do not have (as Robin and Magitot remark) a columnar or prismatic cell wall. It is not difficult to understand how epithelial cells are scattered in different shapes and sizes throughout the peridental membrane. Epithelial cells have the property of multiplying and developing in structures wherever located." While this, probably, does not settle the question, it is more nearly in accord with the views held by other histological workers.

Chapter V. is devoted to the consideration of "Uric Acid and Interstitial Gingivitis." After giving the history of this theory and

quoting the opinions of its principal advocates, and also giving his own in opposition, which have been published heretofore, the author sums up his views as follows: "In an examination of nine hundred and fifty cases by different chemists at different periods, five to six per cent. give positive results as to uric acid by the chemie and microscopic examination. These results demonstrate conclusively that interstitial gingivitis is not due solely to uric acid; that uric acid when found is merely an expression of the uric acid diathesis and a coincidence, since it is not always present in the gums and tartar of patients attacked either by gout or the uric acid diathesis. In the six per cent. of cases there was nothing to show that uric acid was the cause of interstitial gingivitis, since the deposits were examined after the teeth had been removed. Any other irritation may have been the exciting cause. Uric acid acts, when at all, solely as a local irritant."

The question of a special bacterium for pyorrhœa alveolaris has claimed the attention of various investigators, the last on the list being Younger (*INTERNATIONAL DENTAL JOURNAL*). None of these can be said to have reached positive conclusions. Galippe claimed to have found in the pus of pyorrhœa an organism which when injected into a guinea-pig resulted in abscess. Miller cultivated a number of bacteria possessing pyogenic properties, but failed to find a specific organism. To aid in determining this question, the author had investigations made in the Columbus Memorial Laboratory in Chicago, and he gives in detail the results obtained. These he acknowledges are not conclusive standing alone, but, taken in connection with other "observations on this subject, are admissible." An attempt was made to produce this disease in dogs, with the result that "the pathological findings in these cases were not unlike inflammation and infection in other tissues. Similar results would, no doubt, have taken place if inoculation had been performed with pus from an abscess."

The general conclusions of the author do not vary materially from those generally accepted. On page 153 he gives a very clear statement as to the beginning and progress of pyorrhœa alveolaris. This covers very nearly the reviewer's view, and mainly eliminates constitutional conditions and places its origin where it properly belongs,—in local irritation. He, however, classes as predisposing influences, "syphilis, tuberculosis, mercurialism, plumbism, brass-poisoning, lithæmia, nephritis, gout, rheumatism, alcoholism, scurvy, nervous diseases, pregnancy, and old age."

It is with regret that, after such an able presentation of "interstitial gingivitis," the author should reach, in his chapter on "Treatment," such unsatisfactory conclusions. This is made evident by the following quotation: "The clinical history of interstitial gingivitis is essentially that of any other disease of the mucous membranes. The disorder responds quickly to treatment at its outset. Later its complications and the extent of structure involved render treatment very inefficacious, and always insure loss of the tooth." That such a statement should be made in view of the published accounts, by different operators, of complete cures, seems strange, indeed. The reviewer has repeatedly demonstrated that a restoration to health is possible in very advanced stages of the disease. Failure results from defective methods. That of the author may best be given in his own words:

"After the deposits have been fairly well removed, the gums may be syringed with hot water (Cravens) to remove all *débris*. The gums should be saturated with tincture of iodine (U. S. P.), or iodine and aconite, in the following manner: Have a number of wooden tooth-picks (Portuguese preferable) wound with cotton and kept in a little box. Saturate the cotton and paint the gum as far as it will go. . . . From three to five picks will be required. . . . In such cases a different massage brush is to be used. One is here required that will so lacerate and stimulate the gums as to relieve the congestions. . . . After two or three days the gums will contract and healthy circulation follow. . . . An astringent, stimulating, and general mouth-wash should be used in connection with the massage. The patient should return every other day for further treatment with the iodine, or iodine and aconite, used as before."

While all this is valuable as far as it goes, it is open to criticism, and it furnishes the key to the failure of the author to cure long-established cases of this disease.

With the exception of the concluding chapter, the reviewer is forced to regard this book as a very important contribution to the subject. That it has not definitely settled some obscure points in the etiology of pyorrhœa alveolaris must be acknowledged, but it may be asserted that it has fortified many clinical observations, and has thus advanced our knowledge many steps in advance of previous contributions.

The attention of the author is called to several errors in the

spelling of proper names, notably those of Arköyy, Koecker, Nasmyth, and Bödecker.

With this exception, the book has been prepared with the usual care devoted to their publications by the S. S. White Dental Manufacturing Company.

A REVIEW OF RECENT LEGAL DECISIONS AFFECTING PHYSICIANS, DENTISTS, DRUGGISTS, AND THE PUBLIC HEALTH, TOGETHER WITH A BRIEF FOR THE PROSECUTION OF UNLICENSED PRACTITIONERS OF MEDICINE, DENTISTRY, OR PHARMACY, ETC. By W. A. Purrington, of the New York Bar, Counsel of the Dental Society of the State of New York and Lecturer of Medical and Dental Jurisprudence in the New York College of Dentistry, etc. E. B. Treat & Company, New York, 1899.

This compact volume of 105 pages is a timely production, and should be in the hands of every dentist. The time is not far distant in the past when to speak of the jurisprudence of dentistry would create a smile, but at the present time it is regarded of sufficient importance to claim the attention of some of the best legal minds. In proof of this we need only refer to the lectureships upon this subject established in the dental schools and to the men who fill them.

The author, in describing works in "legal medicine," etc., says of this: "The publishers . . . have therefore thought it worth while to issue its review of legal decisions during the past year as a separate pamphlet, adding to it a convenient brief of the law-points that usually arise in the prosecution of unlicensed practitioners of medicine, dentistry, and pharmacy."

The author evidently does not entertain the old-time opinion of a dentist, for he writes: "As the physician has ceased to be called a 'leech' and the surgeon a 'saw-bones,' so has the dentist ceased to be described by cheap wits as a 'tooth carpenter.'" In fact, the author places dentistry where it properly belongs, with other specialties of medicine.

In the chapter on "The Need of Examining Boards Illustrated" the author gives a long series of questions, to which are appended the answers in medicine and dentistry. It is impossible to see the value of this exposure of ignorance. It certainly does not furnish an argument for the appointment of State boards, for not a few instances are in evidence of ignorance emanating from that quarter.

Nothing is ever gained by such exhibits. They, doubtless, could be duplicated in every examination, collegiate or professional.

It is not possible to follow the author through the decisions given. The book should be kept for reference, and as it is of very moderate price, it comes within the reach of all, and every practitioner is interested in knowing how he stands before the law.

CHEMISTRY AND METALLURGY APPLIED TO DENTISTRY. By Vernon J. Hall, Ph.D., Professor of Chemistry and Director of Chemical Laboratories in the Dental School and in the Woman's Medical School of Northwestern University. Published by the Technical Press at Evanston, Illinois, 1898.

The subject of Dental Metallurgy is, comparatively speaking, a new one. From the very earliest date in the history of dentistry metals have been used to fulfil the various indications. This use of the metals, however, has been, and still is, to a great extent an empirical one. Recently one or two of the leading dental colleges have striven to rid the science of dental metallurgy of some of those mysteries hovering around it, by establishing practical courses in which the physical and chemical properties of the metals are taught, and where they can actually be observed.

This practical study, having so recent a birth, requires, like all other things, development. The literature on the subject must necessarily be sparse, therefore any new book on this topic must be received with gratification, as it may give new points that will further the study of this branch of dental work.

This book by Dr. Hall can be read with great profit by the student, as it contains many valuable points. Dr. Hall is very explicit in some things, but not enough so in others. A short description of the phenomena attending the "glancing" of a gold or silver button is rather an essential, otherwise how is a student to know when the last trace of lead has disappeared. When writing that the cupel should be heated a few moments before using, it should be added that the cupel must be made of pure bone-ash, for the ordinary commercial cupel certainly requires to be thoroughly heated for some time, in order to be on the safe side.

It is hardly necessary to weigh the test lead,—measuring is sufficiently accurate. Neither is it fair to use the term assay ton without some explanation of what it is, and what object led Dr Chandler to suggest this system of weights.

A. K.

Domestic Correspondence.

ALUMNI DAY AT THE HARVARD DENTAL SCHOOL.

TO THE EDITOR:

SIR,—For several years past it has been the custom for the alumni of the Harvard Dental School to assemble at their school building for the purpose of keeping alive their acquaintance one with another, for inspecting the work done by students of the school, and for listening to papers on current topics and observing practical operations. The day selected for this purpose is the Monday before the commencement day of Harvard University. This year "Alumni Day" was celebrated on June 26, and was an enjoyable and profitable occasion. In no way could a concise idea of what "Alumni Day" means be better given than by quoting the programme prepared for the occasion.

Programme of Alumni Day, June 26, 1899.

First Floor—Left.

MECHANICAL LABORATORY.

Specimen Cases in Mechanical Dentistry.

(P. W. Moriarty, D.M.D., Demonstrator of Mechanical Dentistry.)

Second-year Class, in charge of Robert J. McMeekin, D.M.D., Assistant Demonstrator of Mechanical Dentistry.

Third-year Class, in charge of Thomas B. Hayden, D.M.D., Instructor in Mechanical Dentistry.

Specimen Cases in Porcelain Inlay, Continuous Gum, and Tooth Carving.

(Arthur H. Stoddard, D.M.D., Clinical Lecturer in Mechanical Dentistry.)

In charge of H. DeWitt Cross, D.M.D., Instructor in Mechanical Dentistry.

Specimen Cases in Crown- and Bridge-Work.

(William P. Cooke, D.M.D., Instructor in Crown- and Bridge-Work and in Metallurgy.)

In charge of Allen S. Burnham, D.M.D., Instructor in Mechanical Dentistry.

IMPRESSION-ROOM.

Cases of Fractured Jaw, Cleft Palate, and appliances used, patients being present.

In charge of P. W. Moriarty, D.M.D., Instructor in the Mechanical Treatment of Fractured Jaws and Cleft Palate.

EXTRACTING-ROOM.

Photographs, illustrating methods of extracting.

In charge of Nathan P. Wyllie, D.M.D., Instructor in *Materia Medica* and Anæsthesia.

Second Floor—Right.

EAST OPERATING-ROOM.

Practical Cases, patients being present, showing work done by Students in Operative Dentistry.

In charge of Joseph T. Paul, D.M.D., Demonstrator of Operative Dentistry.

Orthodontia.

(Eugene H. Smith, D.M.D., Professor of Mechanical Dentistry and Orthodontia.)

In charge of Harry W. Haley, D.M.D., Instructor in Mechanical Dentistry.

Crown- and Bridge-Work.

(William P. Cooke, D.M.D., Instructor.)

In charge of Arthur W. Eldred, D.M.D., Instructor in Mechanical Dentistry.

DENTAL MUSEUM.

(Balcony of the East Operating-Room.)

Waldo E. Boardman, D.M.D., Curator.

LIBRARY.

(North end of West Operating-Room.)

Waldo E. Boardman, D.M.D., Librarian.

Second Floor.

OFFICE.

Emergency Corps Methods.

In charge of William H. Potter, D.M.D., Lecturer in Operative Dentistry.

Specimen Work of First-Year Students.

In charge of Henry L. Upham, D.M.D., Instructor in Operative Dentistry.

Second Floor—Left.

WEST OPERATING-ROOM.

CLINICS.

"Treatment of Salivary Calculus and Pyorrhœa Alveolaris."

Edward C. Briggs, M.D., D.M.D., '78, Boston, Mass.

William P. Cooke, D.M.D., '81, Boston, Mass.

Frederick Bradley, D.M.D., '86, Newport, R. I.

Charles M. Keep, M.D., D.M.D., '90, Boston, Mass.

“Porcelain Inlay.”

Arthur H. Stoddard, D.M.D., '87, Boston, Mass.

Hugh K. Hatfield, '99, Boston, Mass.

(Demonstrations with Jenkins's Outfit.)

Carl A. R. Samsioe, '99, Stockholm, Sweden.

“Porcelain Carving and Backing Teeth.”

Robert T. Moffatt, D.M.D., '95, Boston, Mass.

“Method of Crowning.”

Carl A. R. Samsioe, '99, Stockholm, Sweden.

“Extension Crown and a Suspension Bridge for Lower Molars.”

Horatio C. Meriam, D.M.D., '74, Salem, Mass.

Apparatus for Testing Cement Fillings.

Virgil C. Pond, B.P., D.M.D., '80, Boston, Mass.

Practical Demonstrations of Phosphate Cements, with patients present.

Edward S. Niles, D.M.D., '79, Boston, Mass.

(Notice photographs of all the classes on the walls of this room.)

First Floor.

LECTURE-ROOM A—10.30 o'clock.

Frederick Bradley, D.M.D., Newport, R. I., President Alumni Association, will preside.

Eugene H. Smith, D.M.D., Dean of Harvard Dental School, will address the meeting.

“Dental Legislation.”

Frederick A. Stevenson, L.D.S., D.D.S., D.M.D., '88, Montreal, Canada.

Symposium, “Do the Modern Forms of Gold Produce More Permanent Fillings?”

Cecil P. Wilson, D.M.D., '72, Boston, Mass.

Frederick E. Banfield, D.M.D., '79, Boston, Mass.

Dwight M. Clapp, D.M.D., '82, Boston, Mass.

“Mechanical Tests for Cements.”

Virgil C. Pond, B.P., D.M.D., '80, Boston, Mass.

“The Chemistry and Mixing Phosphate Fillings.”

Edward S. Niles, D.M.D., '79, Boston, Mass.

WILLIAM H. POTTER, D.M.D.

Notes and Comments.¹

OFFICE OF THE STATE SOCIETIES.—In an admirable editorial in the August *Dental Brief*, Dr. Litch says,—

“If the cause of dental education is to be upheld and advanced; if the laws regulating dental practice are to be enforced; if ethical standards are to be maintained, it is chiefly through the State society that it must be done. By every reputable practitioner be it remembered that to do these things the society needs membership; it needs personal work and personal influence; it needs you.”

NOVEL METHOD OF FILLING TEETH.—Dr. Carl Jung, Director of the Dental Institute at the University of Heidelberg, has given food for reflection to dentists in search of a new filling for teeth in which the crowns have been destroyed, leaving the pulp intact. He suggests tin as a material suitable in every respect. His method, given in *The Dentist*, is as follows: “After the cavity has been prepared in the usual manner, and the edges thoroughly finished, the overlapping parts are filled with a little cement or plaster, after which an impression is taken with a little piece of modelling composition, and a plaster model is cast which is thoroughly dried. A little tin is now introduced into the cavity reproduced in the plaster; flow it (use no soldering solution) with the hot soldering iron and press with a piece of leather or linen, as in preparing a flat tooth with tin back. Filed and finished, the tin filling itself is now complete. With some practice it is easy to fill even complicated cavities with the soldering iron, without the tin overflowing the sides. If the soldering iron is not too hot, it is possible to bring the tin into a state in which it does not flow directly, but can be worked with the spatula like wax. A matrix of mouldine or the like could be built around it. Dr. Jung speaks very highly of the results he has achieved.

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

CARBONIZED COTTON AS A ROOT-CANAL FILLING.—In an interesting paper on the art of filling teeth, published in *The Dentist*, the following method of filling root-canals, as practised by Dr. Elof Förberg, of Stockholm, is given. The usual materials, Dr. Förberg claims, do not meet the requirements, for while gold may be made aseptic it is impossible to introduce it into curved and flattened canals; wood and gutta-percha are not aseptic, and decompose. Cements are irritating, and soon dissolve. Speaking of his own method, he says,—

“After years of experimentations to modify cotton in a way to make it insoluble and non-decomposing, I finally obtained in the *carbonized cotton* the material which I was searching for. Carbonized cotton differs in many respects from the hitherto known modifications of carbon. It seems to be a modification between the diamond and the graphite. Like the former, it is a non-conductor of electricity and heat; like the latter, it hardly burns. Like the charcoal, it is a good absorber of gaseous bodies, and excels it on account of its higher porosity. This porous, soft, and flexible carbon, by itself a disinfectant, is also an excellent antiseptic, owing to the addition of anhydrous boracic acid, with which every fibre of it is impregnated. The carbonized cotton was used by me first in the filling of root-canals. All difficulties arising on account of its brittleness and black color were reduced to a minimum after a short time, so that I can say it is excellent for various purposes. The property of carbon to absorb gases and liquids is of importance in the filling of root-canals. All septic masses which may appear in spite of careful treatment are readily taken up by it and made harmless. Carbonized cotton is entirely aseptic, and can be brought to a red heat before use. It may be introduced in the canals as such, or combined with any good antiseptic. No irritation ever results within the tooth nor on the surrounding parts.”

Current News.

NORTHEASTERN DENTAL ASSOCIATION.

THE Fifth Annual Meeting of the Northeastern Dental Association will be held in Hotel Hamilton, Holyoke, Mass., on Wednesday and Thursday, October 18 and 19, 1899. The Executive Committee hope for and desire a large attendance, as their labors have been crowned with such success that the entire exhibit-space has already been engaged. Essayists of prominence have accepted invitations enough to fill up all the time allotted; clinics enough have been promised, and thus a meeting worthy of your attendance has been arranged. Be sure and save out the above dates and attend. A cordial invitation is extended to the profession at large to attend.

EDGAR O. KINSMAN, D.D.S.,
Secretary.

UNION MEETING, SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES, STATE OF NEW YORK.

THE Thirty-second Union Meeting of the above Societies will be held in the assembly-room of the New Osbourn House, Rochester, N. Y., Tuesday, Wednesday, and Thursday, October 24, 25, and 26, 1899.

WM. W. BELCHER,
Chairman.

827 GRANITE BUILDING, ROCHESTER, N. Y.

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No. 11.

Original Communications.¹

DENTAL NOTES.

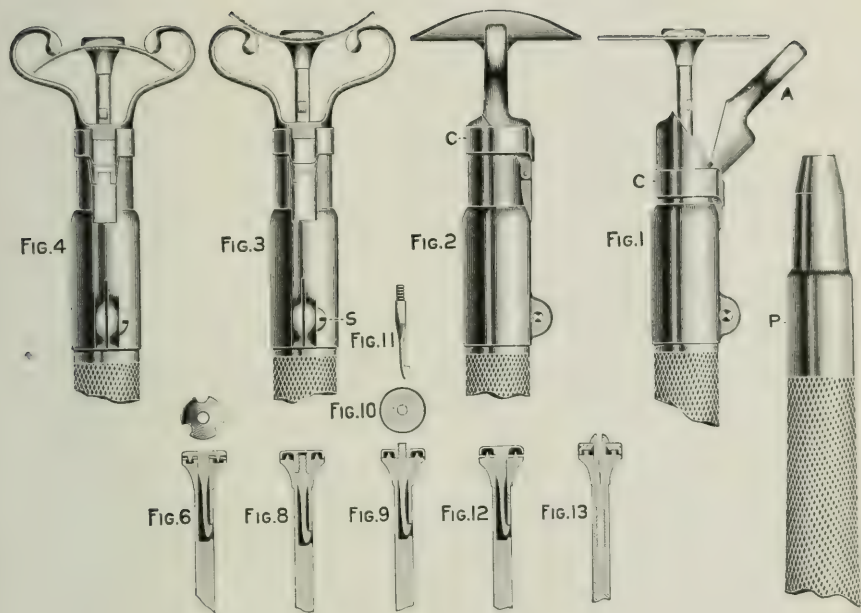
BY WILLIAM ROLLINS, BOSTON, MASS.

NOTE III. THE A-W-L FLEXIBLE DISKS, DISK MANDRELS, AND DISK-BENDERS.

EARLY in my practice I saw the advantage of full contours in fillings. Therefore, soon after Green invented the dental engine, I turned my mind to finding some way to quickly finish the curved surfaces of fillings, inventing the flexible disk and disk-bender. Flexible disks are now made by the hundred thousand, and though they have been in use for a quarter of a century, it is still impossible to purchase good ones. The moment a disk gets wet the polishing powder comes off, because the glue is softened. In my first disks I overcame this defect by floating the paper from which the disks were to be cut on a solution of warm bichromated gelatin, drying, exposing to sunlight to harden the glue, washing to remove the excess of bichromate, and drying. It is to call attention to this method that I speak of flexible disks now. In the many years since disk-benders were devised, they have naturally undergone many changes, one now taking the place of two; serving to bend the disk away from the hand-piece, as shown in Figs. 2 and 3, or towards

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

it, as shown in Fig. 4. The disk-bender is shown with a hinge; open in Fig. 1, to insert a disk, closed in Figs. 2, 3, and 4. The ring (*C*) holds the swinging part in place. To have a disk-bender practical we need to be able to adjust its position on the hand-piece to give the disk more or less curvature. Hand-pieces are usually badly designed for the attachment of extra parts, because they taper. Every hand-piece should have a straight section, as shown in Fig. 1 (*P*), on which the disk-bender should fit, the screw (*S*) giving the necessary tension. The screw-disk mandrel, which until recently was the only practical one commercially available, was too slow in operation, so I invented a number of new ones. Where we do not exert a pull on the disk the beautiful mandrel, recently placed on the market by Dr. Maxwell, meets all requirements, but is not satisfactory with my disk-benders, as the disks pull free, so that I use my older forms, some of which are shown in Figs. 6 to 13. The one shown in Fig. 12 is the cheapest to make, as it has no adjustment for disks of different thickness. In Figs. 8 and 9 the adjustment for thickness is by means of a screw. In Fig. 8 the screw is out of sight, but this form is a little more expensive to make than the one represented in Figs. 9, 10, and 11. In Fig. 1 the releasing catch appears in side view. In Figs. 3 and 4 in front view. When it is desired to release a disk, the catch is pressed with the thumb-nail. The mandrel should be of tempered steel. It costs about a dollar and a half to make one of these mandrels, but if produced in quantity, the price need only slightly exceed that of the present inferior commercial forms. Notwithstanding the simplicity of these disk mandrels, I do not expect to see them in use until some manufacturer has patented them, so I have figured various forms, though I use but one, because I have observed that when a manufacturer patents a thing he did not invent he likes to make his patent as elaborate as possible.



MECHANICAL TESTS APPLIED TO DENTAL CEMENTS.¹

BY VIRGIL C. POND, B.P., D.M.D., BOSTON, MASS.

IN these days of scientific accuracy, when everything is tested mechanically and chemically, when the thread is broken and the finished cloth torn apart; when iron is broken and tested at every step from the pig to the finished product; when cements used in construction are mixed, set, and broken to a scale in pounds before being used; when all workers seek to learn the value of the material they are to use, it seemed to me that something might be learned about our cement filling by the use of a testing machine.

Testing machines are now made for a great variety of purposes, and are very extensively used. Among them are many forms for testing building cements, which are used by architects. A good and very interesting collection of testing machines may be seen at the Massachusetts Institute of Technology, Boston. Riehle Bros., of Philadelphia, manufacturers of testing machines, constructed a very ingenious machine for me, designed to crush or break small objects, and during the past five years I have tested quite a variety of materials with it.

With this machine there are a number of dies in which fillings of any kind can be made; the fillings are removed from the dies, placed in the testing machine, between two steel plates, which close practically parallel to each other, yet with a slight play upon rods and pins so that the filling to be tested is evenly grasped. The power is applied with a wheel and screw, and measured on a self-registering scale, which gives the exact crushing- or breaking-point of the filling in pounds.

Not all the things possible or thought of have been tried, and some of the tests have not been worked out, perhaps, as far as they should have been, but definite results were arrived at in some cases, and much, to me, useful knowledge gained.

The first set of experiments were directed towards finding out how to mix a cement filling. Different cements were taken and mixed in three ways, first to a creamy consistence, or rather thicker,

¹ A paper read before the Alumni of the Harvard Dental School, on Alumni Day, June 26, 1899.

as it is practically impossible to fill a die with cement of that consistence; second, to a fairly stiff mass, which could be taken between the fingers: and, third, to a point where the greatest possible amount of powder was incorporated with the liquid, in fact, mixed according to the directions given by many manufacturers, using a strong, thick, wide spatula.

These mixtures were packed in the dies, allowed to harden in the same length of time, and then broken with the machine.

The experiments were repeated many times to avoid errors, and the figures given are the average results of all the tests made.

The difficulty of making a perfect filling in die, under the most favorable conditions, so often alluded to by writers, was fully realized: and it is my belief that many cement fillings fail because they are not properly packed, the cavity is not thoroughly filled, and I think you will agree with me if you will fill some dies with cement and examine the fillings under a magnifying glass.

The average with fourteen of the cements in common use was as follows: Taking the breaking-point of the mixture with the greatest amount of powder incorporated at 100, the breaking-point of the medium mixture was 80.8 per cent., and the thin mixture about 51 per cent. I say about 51 per cent., because with several of the kind the thin mixtures had not set sufficiently in the time allowed (fifteen hours) to have any strength, and they had to be omitted from the calculation. It seems to be a law that the more powder worked into the fluid the stronger the resulting mass. It did not matter whether the cement was a strong or a weak one, no exception to the rule was found.

The time of setting made no difference, as the same results were obtained at all times of trial, from one hour to several days; they were all stronger after the longer periods of time, but the relative strength was the same. The time generally used (fifteen hours) was taken for convenience simply, as it was found that the hardest or driest mixtures had thoroughly set in that time, and some fixed time was needed in order to compare different makes of cement. The slow setting of the soft or thin mixtures will be referred to again.

In the above tests it was noticed that different colored powder, of the same make, out of the same box, mixed with the same liquid, varied considerably in strength.

These were submitted to an expert professional chemist, who reported that the different colored powders, where there was differ-

ence in strength of the filling noticed, were of different composition. When they were colored by the addition of some substance before fusing, or by a different degree of heat in fusing, the different colors were of about the same strength.

If you take any powder and add a small quantity of the coloring-matter, such as is furnished by some makers, there is no appreciable loss of strength, but if the coloring material is added freely or to excess, the mass is materially weakened.

We frequently hear that some one has analyzed and found arsenic in the cements, but in none of those analyzed did the chemist find any.

His analysis shows that the powders may be roughly divided into two classes: First, those which are composed of pure or practically pure oxide of zinc; second, those which contain other substances, such as oxide of tin, aluminum, silicate, and calcium.

These substances are used very largely by some makers, and form what might be called a concrete, in which they are cemented by the oxide of zinc.

The first class I have always found the strongest; some of the second class are absolutely worthless, and they all give very uneven or irregular results, owing, apparently, to the uneven mixing of the ingredients. Almost all the liquids are the glacial phosphoric acid, and most of them contain a trace of iron.

Probably all of you have had mixtures of cement harden or set very quickly; perhaps while you were manipulating them they suddenly became hard. Such mixtures were found to have no regular breaking-point, and while never more than 50 per cent. of the normal strength of the cement, they were frequently as low as 25 per cent. Chemists say this action is due to the deterioration or change of the liquid. Glacial phosphoric acid (HPO_3) will slowly change to common phosphoric acid (H_3PO_4).

To find the effect of pressure, two dies were filled equally carefully from the same mixture, and one was immediately subjected to pressure, while the other was not. After allowing to set in this manner (one under pressure and one not) they were removed from the dies and broken. It was found that the one subjected to pressure was always the stronger, the average of all tests showing 11 per cent. increased strength. Whether this increase of strength is produced by the pressure or is due simply to a more perfect packing of the material, it shows the advantage of applying all the pressure possible to a cement filling.

Tests were next made with a view to finding the time required for a cement to set.

Thin mixtures were found to be very slow in setting, and after twenty-four hours several makes flattened out like putty under a few pounds of pressure. This seems important in selecting a cement for use in crown- and bridge-work, and would suggest that you try the cement you are now using by making a filling or pellet of a thin mixture and trying it from time to time to see if it ever becomes hard and strong.

Each kind or make requires a different time, for all those tested by me required much more time than was anticipated.

Taking a hard or dry mixture (one with a large amount of powder) of one of our quickest-setting cements, it was found that fillings made in the dies would flatten out under slight but increasing pressure up to about twenty-five minutes. Between twenty-five and thirty minutes a great change took place, and at thirty minutes they broke under a pressure somewhat approaching that of their greatest strength.

The fillings cut and appeared fairly hard before they would break, but after the breaking-point was reached they were noticeably more difficult to cut.

Experiments were made to determine the adhesive force of cements. Taking as the definition of adhesion the molecular attraction exerted between the surfaces of bodies in contact, and of cohesion the force by which the molecules of the same material are bound together, it was found, with smooth bone or ivory, which was used, that the cohesion was greater than the adhesion; the cement would break off from the bone or ivory. The thin mixtures were more adhesive than the very thick ones; still, the cohesion was greater than the adhesion. When the surfaces of the bone or ivory were considerably roughened, but with no undercuts, the adhesion was greater than the cohesion, with both thick and thin mixtures, but the thick required the most force to break, as in this case it was the cement which broke.

I am unable to give the results in figures, as it was impossible to prepare and roughen the pieces of bone and ivory just alike for each test.

To learn the value of some of the preparations used to protect cement fillings while setting, several dies were filled from the same mixture, and the fillings removed as soon as possible, just as soon as they would retain their shape. The time was from two

to four minutes. One filling was allowed to set without treatment; one was covered with vaseline; one was covered with some kind of varnish, and one with some one of the preparations which require heat for their application, such as the sticks furnished with some of the cements, and apparently composed of wax, paraffine, etc., and White's temporary stopping, which is recommended for this purpose.

The results of many experiments were as follows: Taking the breaking-point of the filling which was not treated, had nothing put in it, as 100, the one covered with vaseline was 76 per cent. as strong; the one covered with varnish was 71.2 per cent. as strong; the one covered with heated preparation was 67.6 per cent. as strong. All the preparations had a distinctly weakening effect. The experiment next made was exactly as above, except that the fillings were dropped into saliva as soon as treated, and allowed to remain there until set.

One more filling was made for this test, and two were left untreated, one of which was allowed to set out of the saliva, and one was put into the saliva with the treated filling. Taking the breaking-point of the filling which was left out of the saliva, one of the untreated ones, at 100, the other untreated one, which set in saliva, was 76 per cent. as strong; the vaseline-covered one, 69.7 per cent.; the varnish-covered one, 62 per cent.; the heated preparation, 49 per cent. The untreated fillings, although they set in the saliva, were stronger than the protected ones. The same experiments were made, allowing a longer period of time before treating and putting them into the saliva, but the results were relatively the same, although all were stronger. After about thirty minutes, or the time when the cement sets, the saliva has much less effect upon the fillings, and the untreated or unprotected filling, placed in it, approaches in strength its mate, which hardens in the air. The figures at thirty minutes were, 100 + 82 per cent.

With the varnishes the loss of strength was due to the ether and alcohol, in which the gums are dissolved. With the hot applications it seems to be due to the heat. I find that, in order to cover the filling sufficiently to protect it from moisture, the preparation must be thoroughly heated, in fact, practically melted. If this is not done, you can see under a magnifying glass that it simply adheres to the filling in places, but does not cover it, and affords but little protection against moisture.

A filling placed in a sand-bath, heated to a temperature sufficient

to thoroughly soften one of these preparations, and left there a few seconds, will show the same loss of strength.

According to the results of these tests, it is my opinion that, first, in mixing any cement, as much powder as possible, consistent with good working qualities, should be incorporated; secondly, if coloring material is used, it should not be used to excess; thirdly, if the mixture acts poorly, sets immediately, or before it can be properly packed, it should not be used; fourthly, all pressure possible should be applied to the filling, using a matrix, wherever necessary, to get pressure; fifthly, the cement should be placed in a perfectly dry cavity, and kept thoroughly dry until packed (you will get fair results with most cements if they are kept dry two or three minutes, very good results if kept dry from eight to ten minutes, and the best possible results when kept dry from twenty-five to thirty minutes); sixthly, none of the so-called protecting coatings I have tried should be used.

These experiments have been duplicated in the mouth as far as possible, and, to the best of my judgment, the results obtained from the testing machine have been confirmed in practice.

No doubt many of you have tried these experiments, although, perhaps, in a different way, and the discussion will show whether our results agree.

If the testing machine proves reliable, it will be much better and more simple than any chemical tests, for with the composition of a cement known, its strength and durability is yet to be determined, and every box must be analyzed, to know that the manufacturer had not changed its composition without altering the label. Each box *can* be tested by a machine, and every make compared with little trouble.

In closing, I will quote from Dr. W. B. Ames, who has made a study of cements from what may be called the chemical side. He says, "The prime cause of the destruction of a good phosphate filling in the mouth is friction."

DENTAL EDUCATION A PROBLEM.

BY EDWIN T. DARBY, D.D.S., PHILADELPHIA.

MR. PRESIDENT AND GENTLEMEN,—In casting about for a subject upon which to address you this evening, I could think of none more appropriate to a Boston audience than Education, and none more fitting to a dental society than Dental Education. You will observe that I have been announced to speak upon “Dental Education a Problem,” which would seem to imply that, in my own mind at least, the best method of dental education has not been fully settled. Although I have been personally identified with college work for a quarter of a century, and have rejoiced at the wonderful progress which has been made during that time, I am not among those who would seem to think that our methods have reached perfection. When dental colleges were established, many of their methods were copied from medical colleges and based upon the assumption that dentistry is a branch of medicine. And so fully has that belief become engrafted in the minds of the followers of the dental profession, that it is quite generally regarded as a specialty of medicine.

It is not my purpose this evening to discuss that phase of the subject. I take it for granted that you are so well satisfied with the character of your calling that you are indifferent as to its place among the professions. You have only to compare its standing to-day with that of fifty years ago, when the first dental college was founded, to assure you that it occupies a position as honorable as any which has for its object the prevention and amelioration of human suffering.

Every profession or calling in life has its successful followers. It has also, alas! its unsuccessful followers. The thoughtful man naturally asks, Why do some men attain eminence in their profession, while other men, seeming to possess equal facilities for preparation, occupy mediocre positions throughout life? Has the fault been in the man, in his training, or in his career after leaving college? Let me put the question in the most practical manner. Why is it that the graduates which the dental schools are annually turning out are so unequal in attainment, so badly matched to run a professional race? Is the man at fault, or has his college training been at fault? And just here we are confronted by our first

problem in dental education. Preliminary education undoubtedly has much to do with a student's ability to grasp and retain the teaching of the various branches which are embodied in the dental curriculum, and the well-equipped candidate may be said to possess advantages over the student who has been less fortunate; but this alone does not always account for the difference which is to be found in college graduates.

Let us for the moment assume that each candidate for dental education has graduated from a high school, the requirements of which are equal; and just here let me say, that I trust the day is not far distant when the requirements for entrance to any dental college will be a certificate or diploma from a high school, whose standard shall be as high at least as that required by your Boston schools. When that shall have been attained, then, and not till then, can it be said that the candidate for dental education has received a proper preliminary education. The school with which I am connected is rapidly approaching the time when that will be one of the requirements for admission, and other schools will, I doubt not, as rapidly as practicable, demand the same.

Again, let us assume that our candidate for dental education has a preliminary training fitting him for the special study of any of the liberal professions. Has he the qualifications fitting him for the successful study and practice of dentistry? His preliminary education may fit him for the study of medicine, law, or divinity, for in the prosecution of these the brain and not the hand is the organ to be trained, whereas in dentistry, the hand as well as the head must be educated. The selection of a profession, therefore, is another important problem.

Every-day and commonplace as is this matter of choice, and important as it should be regarded in all its aspects, it nevertheless clearly and conclusively appears, from even the most casual observation, that men often mistake their calling and labor in fields for which they are not fitted, with a hopeless prospect of future success. Could we know the real cause of the many failures in life, I doubt not we should find that the majority of them are due, in part if not wholly, to lack of adaptation, or want of fitness, many having entered professions at the earnest solicitation of parents or friends whose bent or choice would have taken them into the business mart, and others who are wearily handling the yard-stick or posting the ledger would have been in their joyous element pleading to jurors or thundering in the forum. The

notion that law, medicine, or some of its specialties, and divinity must be worshipped by the candidate for respectability and honor has done incalculable damage to society. It has spoiled many a good mechanic, many a successful merchant, and has robbed the rural districts of many a good farmer.

But how, you ask, is a young man to know just the niche which nature has intended him to fill in the great cathedral of the world? I am aware that the proclivities of men are not always glaringly manifest in youth, but the bent or tendencies of most men are recognizable at an early age. It would not have required a long argument or intricate process of reasoning to have convinced the young West that he was intended for a painter when he began in the attack and plundered the family cat for bristles to make his brushes; nor Händel, that he was to be a musician when he was frequently stealing interviews with a smuggled clavichord: nor Michael Angelo, when neglecting school to copy drawings, which he dared not bring home; nor Murillo, who filled the margins of his school-books with drawings; nor Pope, who wrote excellent verses at fourteen. In many cases, so early is the preference manifested that it would seem as if the callings, impatient to be chosen, selected their own agents and, storming heart, hands, and brain, made them captive to their will.

It is said "our wishes are presentiments of our capabilities." Can anything be more reasonable than to suppose that he who, attending to the duties of his profession or trade, can gratify the predominant faculty, the reigning passion of the mind, will be the most successful? The very fact that he has an original bias, a fondness or predilection for a certain pursuit, is the best possible guarantee that he will follow it faithfully. His love for it, aside from all other motives, will insure the intensest application as a matter of course. A French writer on agriculture observes that it is impossible profitably to improve land by trying forcibly to change its natural character, as by bringing sand to clay or clay to sand. The only way is to adapt the cultivation to the nature of the soil. So with the moral or intellectual qualities. Exhortation, self-determination, may do much to prick a man on in a wrong career against his natural bent; but when the crisis comes, the artificial character thus laboriously induced will break down, failing at the very time when it is most wanted.

My answer to every young man who asks what pursuit or calling in life he should select would be, Do that which you love most,

—that which attracts you with greatest force. There is hardly a person who is not qualified to shine in some profession or pursuit, and it is better to be at the head of an inglorious calling than at the foot of one which the world calls respectable.

After careful observation extending over a long period of years, I am persuaded that the qualifications essential to the making of a good dentist are much the same as would be required to make a good machinist, a good watch-maker, or a good surgeon, and I am also persuaded that unless a man has these innate qualifications, or can acquire them by dint of perseverance, he will never rank high as a dental practitioner, and until the dental schools of America adopt some plan of ascertaining this peculiar fitness, or the absence of it, they will annually turn out some men of mediocre attainment, who will be handicapped from start to finish. But how to ascertain this peculiar fitness is one of the problems which the colleges have not solved. The responsibility heretofore has been vested in the candidate for admission. It has been presumed that he has weighed the demands which will be made upon him, and has been allowed to enter college and learn for himself his adaptation or the absence of it in this particular line. He has sometimes learned it early in his student life, and has wisely decided upon some other occupation, but too frequently he has persevered in a career for which he knows he is not fitted, and has wasted years of valuable time, only to learn at the close of his college course that he has mistaken his calling. To avoid just such calamities as this should be the aim of the dental schools.

I am aware that it would be difficult to discriminate with any degree of accuracy in every case unless the candidate had been engaged in some pursuit in which manual procedures had been practised. The ideal feeders for dental colleges would be manual training schools, and although it might seem impracticable to insist upon this as one of the conditions of entrance upon a dental course, it would certainly aid materially in determining the fitness of the applicant. Our course in operative and mechanical technics is supplying a long-felt want in this direction. The hand as well as the head is here trained, and the benefits derived from a few weeks in these laboratories is apparent quite early in the student's career.

Again, assuming that our candidate for admission to a dental school has the preliminary education and the manual dexterity, has he sufficient time in the prescribed course to acquire that

knowledge which the curriculum imposes? Let us for a moment survey that curriculum. In three years he is expected to acquire a knowledge of anatomy, physiology, chemistry, histology, bacteriology, microscopy, oral surgery, dental pathology, materia medica, therapeutics, mechanical dentistry, metallurgy, operative dentistry, and osteology; and be it observed that in many of these branches he is expected to pass the same examinations as the medical student who sits by his side. Are the colleges demanding too much in the time allowed? Are they demanding too much in the abstract? Is it essential that the dental practitioner should possess a knowledge of the various studies embraced in this curriculum? And if so, ought not some of it to be acquired before entering upon the study of dentistry proper? These are problems which have not been fully solved.

It has been justly said that a great deal of the wisdom of a man in this century is shown in leaving things unknown, and a great deal of his practical sense in leaving things undone. The day of universal scholars is past. "Life is short and art is long." The range of human knowledge has increased so enormously that no brain can grapple with it, and the man who would know one thing well must have the courage to be ignorant of a thousand other things however attractive or inviting. As with knowledge so with work. The man who would get along must single out his specialty, and into that must pour the whole stream of his activities, all the energies of his hand, eye, heart, and brain. Broad culture, many-sidedness, are beautiful things to contemplate, but it is the men of single and intense purpose who steel their souls against all things else that accomplish the hard work of the world. The successful man in any calling is he who can say, *This one thing I do.* With the exception of a few great creative minds, the men whose names are historic are identified with some one achievement upon which all their life force is spent. You think of Watt, and instantly the steam-engine is suggested; of Arkwright, and the spinning-jenny whirls before you; of Davy, and the safety-lamp lights up the mine; of Harvey, and the blood courses the more quickly in your veins; of Jenner, and you see disease stayed in its progress by the discovery of vaccine; of Morse, and the electric spark is seen darting from continent to continent; of Edison, and the electric light flashes before your eyes. A man may have the most dazzling talents, but if they are scattered upon many objects he will accomplish nothing. Strength is like gunpowder,—to be effective it

needs concentration and aim. The marksman who aims at the whole target will seldom hit the bull's-eye.

I am aware that there are exceptions to this rule of exclusiveness or concentration of aim. There have been prodigies of genius who have been able to accomplish many things during an ordinary lifetime, and do these many things well. Thus Cicero was a master of logic, ethics, astronomy, and natural philosophy, besides being well versed in geometry, music, and all the other fine arts. Leonardo da Vinci was not only a great painter, but a mathematician, metaphysician, musician, poet, sculptor, architect, chemist, botanist, anatomist, and astronomer, besides being skilled in mechanics and natural history. The very rarity of such prodigies is what makes them prodigies. To every such instance of universal accomplishment may be opposed thousands who have failed in life by dabbling in too many things. Most men run uncertainly if they have two goals. Vastly better is it to be ignorant of a great many things, and so avoid the calamity of being ignorant of everything.

Do not misunderstand me, gentlemen. I would not seem to speak disparagingly of broad culture or varied accomplishments. The professional man should be a man of culture and refinement. He should be possessed of all knowledge which will bear in the most remote degree upon the specialty which he has chosen. There is no pleasure or satisfaction so great as that which comes through the acquisition of knowledge, and that pleasure is intensified tenfold when one is conscious of acquiring information which will be useful in his daily life; but, unfortunately, to acquire it means time, and time represents capital. In the past our ranks have been filled by young men coming from families in moderate circumstances, and often of inferior preliminary education; but as the entrance requirements have been raised, a better-educated class of men have applied for admittance to our dental schools, and just in proportion to this increasing demand, just in that proportion will better-educated men enter upon the study of dentistry. But the demand for a better preliminary training is not the only one which has been made. The curriculum has also been increased, until to-day it embraces a list of subjects the knowledge of which taxes the student's energies to the fullest extent.

You tell me that the demands made upon the dental student are not greater than those made upon the medical student, but

the comparison is not a valid one. Medicine is a science, dentistry is both a science and an art. The skill which the medical man acquires comes after graduation; the skill of the dental student must be shown before graduation. The dental student must not only learn a science, but he must spend months in acquainting himself with manipulative processes and procedures, which in many of the trades require three and four years' time before the apprentice is considered an expert workman. It requires four years to make a good machinist, a good watch-maker, a good jeweller, and yet the dentist is expected to do the delicate work of any of these. To accomplish all that is demanded of the dental student at the present time, and fit him for entrance upon the practice of his profession, another year should be added to the college course.

If unlimited means were at the disposal of those who wish to enter the dental profession, it would be easy to suggest an education which would not only fit the candidate for dental practice, but to occupy a position in society inferior to none. Let me suggest an education which would give the dentist a proper standing in any community. Let his preliminary education be not inferior to that required for a graduation from a high school of superior rank, or, better still, a classical education. Let him spend at least one year in a manual training school, that his hands as well as his head may be trained. Let him graduate from a medical school of recognized worth (not that a medical education is essential to the proper practice of dentistry, but because of the additional satisfaction which such an education would give the candidate, and the confidence which it would inspire in the minds of the public). And then let him spend at least two years in a dental school, from which he could not escape with a diploma until he had shown skill in every detail of practical work.

But you tell me that these are Utopian ideas, and that life is too short to spend so much of it in preparing for a vocation: that the average man would be thirty years of age before he became self-supporting: and the criticism is a just one. The tendency of the age is one of condensation or specialization, and it is to be hoped that the day is not far distant when a University of Medical Science will be established, in which each student may select the studies which bear directly upon the one specialty which he proposes to make his life-work. In such a university many of the studies which are now embraced in the dental curriculum could be

taught and the dental course confined more particularly to the teaching of the dental branches.

If the dental schools of America are to continue as at present organized, and the curriculum remain the same, it seems to me that a fourth year should be added to the course, and that year devoted almost exclusively to practice, in both the operative and mechanical departments. It is only by doing over and over again the various procedures that any degree of skill is attained, and it is just this skill which is so essential to qualify the student for entrance upon a dental career. Such additional requirements might deter some from entering upon the study of dentistry, but the profession is not suffering for a large influx. What it needs is better qualified men in its ranks, and the schools which recognize this demand and meet it are the ones which will command the confidence and respect of the dental profession and the world at large.

DENTAL SCIENCE IN 1480, AS EXPOUNDED BY PETER DE LARGELATA.

BY WILLIAM H. TRUEMAN, PHILADELPHIA.

A work by Peter de Largelata, Master Surgeon, of Bononia, is the oldest printed book containing an account of diseases of the teeth that I have yet met with. The copy before me is dated Venice, September 12, 1499, and is of the fourth edition. The Army Medical Library at Washington has a copy of an earlier edition noted in its catalogue, dated 1480.

The book contains two hundred and sixty-two folio pages of very compact type, equivalent to about five hundred octavo pages of a modern medical book; about five pages are given to diseases of the teeth. It is in Latin, and without illustrations. The title-page simply gives the name of the author and his title,—“*Cirurgia Magistri Petri de Largelata;*” the title-page as we now know it, giving at least an idea of the contents of the book, while not unknown, was not then in general use; it came a few years later. The catalogue of the Army Medical Library notes that the name is sometimes written “Argelata.” I have been unable to gather any further information of the writer.

We may remember that the printed book was, on its advent,

surreptitiously introduced as the work of the scribe, and was purposely made to conform as nearly as possible to those it supplanted. It was only when the market became glutted, and the price in consequence declined, that it became known as the product of the printing press. It was only when the art of printing had fully proved its superiority to the slow and inaccurate work of the scribe that the printed book began to assume, slowly, and step by step, the new dress its new mode of production rendered possible. The printed book, as a printed book, made its advent about 1430; it did not, however, assume any great commercial importance until about 1450, when Faust and Gutenberg, at Mayence, made printing an important business.

In this book, as was customary in manuscript copies, the matter later placed upon the title-page is found on the first page, with nothing to distinguish it in either type or arrangement from other portions of the text, and reads, translated, "The beginning of the First Book of the Complete Teacher of the Healing Art, by Peter de Largelata, Master Surgeon, of Bononia." The next paragraph may be considered a preface; it reads, "Introducing for the fourth time, so satisfactory they have proved to my fellow practitioners throughout the world, the four Canons of Avicenna, as ordinarily accepted." He then thanks his patrons for the favor shown by so often calling for his book, and proceeds to outline its contents. Bononia, now Bologna, is an ancient Italian city about eighty miles north of Florence, and was once an important educational centre.

It is by no means a record of original research. He follows closely his Arabian master. His description of disorders of the teeth are scarcely recognizable by a practitioner of the present day, while his remedies, with but few exceptions, seem to be selected more with reference to the patient's imagination than for any special virtue that they may have had. Its peculiar type, abbreviations, obsolete words, and occasional typographical errors, make it a difficult book to translate. It is probable that older works than this, treating of our science, may exist, as it is known that very soon after the printing-press was recognized it was used to duplicate works on science and medicine, and long before the introduction of movable type, collegiate text-books were printed by the xylographic or wood-block process.

REMINISCENCES OF DR. BONWILL.

BY EUGENE S. TALBOT, M.D., D.D.S., CHICAGO, ILL.

IN the death of Dr. Bonwill the dental art, especially its mechanical department, has lost its most zealous worker. The dental profession never before possessed, and many generations will pass ere it will again possess, such a genius. Bonwill was a genius who could not only invent, but could simplify the principles of those already invented, so better results were more easily obtained. There is no more difficult problem in mechanics.

He was a decided enthusiast as to his profession. Every patient, no matter how poor, received his best services. Bonwill had no equal as an all-round operator. There are many dentists in the profession who are good gold operators, good amalgam or cement workers, good at regulating teeth, etc., but Bonwill performed every variety of dental operations perfectly.

It was my good fortune to be one of a committee of five (from the Section on Stomatology of the American Medical Association) appointed at the Philadelphia session in 1897 to visit his clinic on producing anæsthesia by rapid breathing. Owing, perhaps, to lack of time and material, anæsthesia was not employed. The committee, however, were repaid by a clinic it would be difficult to duplicate. The clinic was held at nine A.M. (the only hour suitable for the committee) on the day subsequent to its appointment. Dr. Bonwill had collected forty-eight patients ranging in age from fourteen to seventy-eight years. These patients represented the extensive field of his practice. They were from Delaware, New York City, and Philadelphia. Every operation except crown- and bridge-work was exhibited. "Pyorrhœa alveolaris" was conspicuous by its absence. Every mouth was clean and healthy. Artificial dentures were accurately adjusted and articulation was perfect. Teeth, including the anterior lower, were built up and contoured with amalgam fillings. Spaces, clean and smooth, were noticed between all the teeth, points for which Bonwill was famous. His patients loved and admired him, hence his perfect control over them. A patient with an uncleanly mouth (no matter at what age) he would send away, telling him not to return until his mouth had been thoroughly cleansed, saying, "then I shall be pleased to operate for you." He spent much time in teaching his patients prophylaxis of the teeth and gums. He had the rare

satisfaction of being able to say that he did not know what it was to have a case of "pyorrhœa alveolaris" in his practice.

His ingenuity was not confined to his specialty. He invented many useful things for general use.

Although Bonwill was not in the true sense of the word a pathologist, his genius often led him to appreciate pathologic etiology. From this came his favorite theory that improper articulation and want of spaces between the teeth were the sole causes of "pyorrhœa alveolaris." His farsightedness often reached beyond existing limits of dental practice. He was not a believer in crown- and bridge-work, because of the irritation produced about the gum margin and requirement of one or two roots doing the work of more. In place of this he built out the crown with amalgam, thus leaving the gum margin free, and inserted an adjustable plate in the place of bridge-work. Greater familiarity with the etiology of interstitial gingivitis will justify this conclusion of Bonwill and consequent change of methods of operation. His powers of minute observation rivalled that of "Sherlock Holmes." On being introduced to a dentist, he would say, "Let me see your office," and thereby he would size up the dentists and his methods.

It was my pleasure to travel four months with Dr. Bonwill in Europe, whence came an excellent opportunity to study the man and his methods. From the day we left until the very hour of our parting at New York Dr. Bonwill was busy. On shipboard he was continually writing. To his fellow-travellers he seemed the busy man in the party. He held clinics in nearly every country of Europe. At Moscow six afternoons until after dark were devoted to clinics. The large room was packed to the door. Not one-tenth of those present could see a thing he was doing, but his presence seemed to attract those of the section. No one, not even Virchow or Lombroso, received greater attention at the Medical Congress than Bonwill. The ovation at the surgical banquet surpassed everything at the meeting. He was lifted from the floor and carried to his seat at the table upon the shoulders of his friends, both dental and medical. At Berlin, Leipzig, St. Petersburg, Stockholm, Bremen, Paris, and London he held most enthusiastically attended clinics. The large number present at these clinics and the presents he received are but slight evidences of the many friends he made while abroad.

ARMY AND NAVY DENTAL SURGERY.

BY B. H. CATCHING, D.D.S., ATLANTA, GA.

It does seem that we are on the road to having dental surgeons in the army and navy. The end of the road is not in sight yet, but, judging by the signs, it is not far off. It is through the National Dental Association the profession should speak, and the action of that body on this question is anxiously awaited.

We need not argue the necessity for such a department, for there is not a single argument against it, save expense to the government, and that argument will not stand by the side of humanity and duty.

England is awake on this line; and before we know it, she will be in advance of us. She has not the politicians to fight or to win that we have.

I quote as follows from the *British Journal of Dental Science*:

"**SOLDIERS' TEETH.**—The fiat has gone forth from the War Office that in the London and Manchester recruiting districts the examining medical officer shall have the power of obtaining dental services for an otherwise acceptable recruit. There seems to be great joy among the recruiting sergeants, among whom the regulation forms an absorbing topic. Several agreed that it was more than time something of the sort was done, as many fine, big fellows were rejected daily on the score of having 'more than five unsound teeth.' In very rare instances 'pictures of men' had been admitted with artificial teeth. It was a *sine qua non* that the soldier should be able to masticate his meat. To escort a recruit to the dentist's would be a new experience; though there was a division of opinion as to whether the new regulation would attract or scare. At the Admiralty Head-quarters, in Spring Gardens, the head clerk explained that the new order did not extend to the navy. They declined hundreds of men in the year on account of their dental deficiencies, being still more particular than in the army. The marine recruiting sergeants had more to say, feeling the teeth question very keenly: 'Before a man can join the royal navy he must have four sound opposing molars, and men must gape before we think of taking them on.' It was, they complained, an every-day occurrence for fellows to walk straight from them to St. George's barracks and join the army."

The obtaining of dental services at the recruiting stations will lead on to a permanent demand for his services. I have read with interest Dr. Schamberg's article in your June issue, and fully agree with him that only those having the M.D. degree with the D.D.S. degree, should be eligible.

Lately we have seen where the War Office had to reduce the requirements at recruiting stations. I do not know where the reductions were made, but it shows that if we are to maintain a larger standing army and maintain high requirements for enlistment, sooner or later the office of the dental surgeon will be in demand. I have seen already, in anticipation of this act, young men seeking influence for the position who are not competent to fill it.

I find that a common sentiment in favor of this movement is fast forming. The necessity for services of the dental surgeon was made manifest in the Cuban campaign; it was brought close home to many who are now active in public life, whose counsel will aid the movement.

The forming of a new army and navy opens this question to the eyes of many in authority who have been blind to its necessity under the old standing army regulations.

Keep this question, it is an important one.

Abstracts and Translations.

HYPERTROPHIC GINGIVITIS: HISTOLOGICAL RESEARCHES.¹

BY DR. LUIGI ARNONE, PISA, ITALY.

IT is not of rare occurrence, in the practice of dentistry, to find the gums of some patients affected by the disease known as hypertrophic gingivitis; but very few practitioners have, till now, described this affection of the mucous membrane of the gums.

Magitot's studies are the latest which have been published on the subject. He describes this hypertrophy as simply a phenomenon of hypergenesis in the fundamental anatomical elements.

¹ Translated from *L'Odontologia*, xxii. year, No. 6, Palermo, with the author's kind permission, by W. Dunn, D.D.S., Florence, Italy.

On the other hand, Dubois, in his "Treatise on Surgery," observes that this hypertrophy is often accompanied by dental anomalies, especially in the position of the teeth, and expresses the opinion that hypertrophy is most often due to the transformation of a fungoid state, owing to the diminution in the diameter of capillaries, by cicatrization, and fibrous organization of the fungoid body. On this point, however, I cannot agree with Dubois.

Many are the causes of hypertrophy of the gums. It is found in patients with green tartar. Broken teeth and roots will produce local hypertrophy. It is also found accompanying anomalies in the position of teeth, especially in the incisor region (perhaps because the continual movement of the lips produces a slight, but constant, mechanical irritation). Besides, in the irregular interstices of these teeth food and mucous secretions are apt to lodge, together with micro-organisms, which rapidly develop; and this explains the nauseating emanations from the mouths of these patients.

It must also be admitted that a predisposition exists on the part of patients to hypertrophy, since the same causes will often produce contrary effects on two different individuals. For in some salivary calculus will produce, as before stated, hypertrophy, and to such an extent as to sometimes cover the teeth; whereas in others (and these form the majority) it will produce the contrary effect, and cause atrophy and recession of the gums.

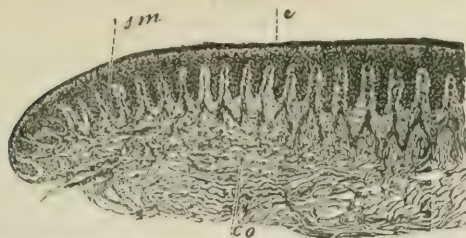
An hypertrophied gum will not always present the same appearance. It is generally found of a dark-red color, almost approaching to purple; its consistency is always more pasty than the healthy gum; and at times it is softer and semitransparent.

It is never smooth on the surface, but feels rather granular to the touch; it is easily detached from the necks of the teeth, and it bleeds very freely on the slightest provocation. It is seldom painful; indeed, the only troublesome features are the oft-returning bleedings and bad breath.

I began my researches with the preconceived idea that I should find neo-formations in these fungoid growths; whereas, I found, with Magitot, that in all and every form of atrophy or hypertrophy of the gums there is no histological difference between the healthy and diseased tissue; it is only an alteration in the relation between the different tissues.

In order to get a clear idea upon the modest researches I have been able to make, I have placed sections of normal gum tissue beside the pathological sections; these were collected from the dis-

FIG. 1.



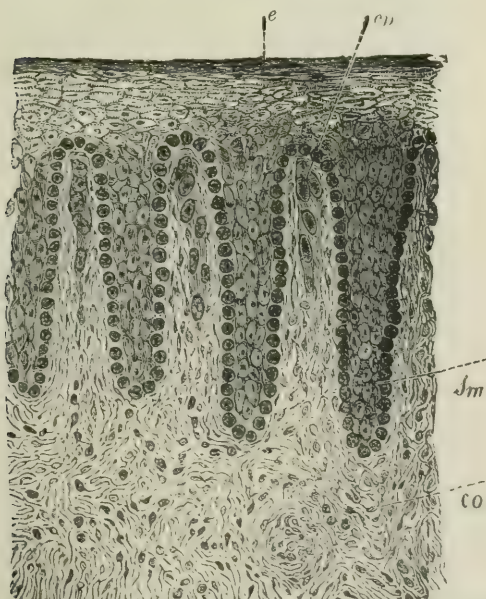
Normal gum, magnified 17 diameters: *e*, corneous layer; *sm*, mucous or Malpighian layer; *co*, submucous connective tissue, with elastic fibres.

FIG. 2.



Hypertrophied gum, magnified 17 diameters: *v*, vessel; *e*, submucous muscular layer; *p*, Malpighian layer.

FIG. 3.



Section of normal gum, magnified 300 diameters: *e*, corneous layer; *cp*, capillaries; *sm*, papilla of the mucous layer; *co*, submucous connective tissue.

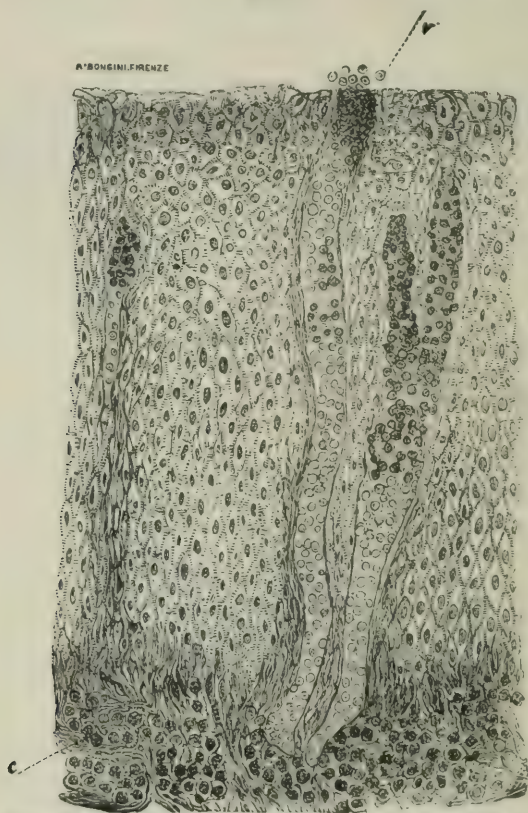
secting rooms of the University of Pisa, through the kindness of Dr. Bertelli.

A transverse section of the gum differs but little from a section of the skin in any other part of the body.

In fact, we find in Fig. 1 the corneous layer, the pellucid layer, the Malpighian layer, and the submucous layer.

Fig. 2 represents a section of hypertrophied gum, hardened in alcohol, and seen by low power. In this the alterations are: (1)

FIG. 4.



Section of hypertrophied gum, magnified 300 diameters: *v*, vessels with blood-corpuscles oozing out; *s*, mucous layer; *c*, submucous layer, with glandular cells and structure.

Weakening of the superficial layers; (2) loss of shape and irregular arrangement of the papillæ in the mucous layer; (3) dilatation of the blood-vessels, some of which open on the free edge of the gum point marked at *v* (labial aspect of the gum in the incisor region).

If we cast our eyes now on Fig. 4, an enlargement of 300 diame-

ters of hypertrophied gum, we can see even better the weakening and thinning of the outer layers.

At *v* one can see blood-globules coming out of the free edge of the gum, through an open blood-vessel, some of them forming a clot near the opening. The cells of the mucous layer are larger and longer than the normal ones, and their nucleus three or four times the original size.

Whilst Fig. 3, with the same power, section of normal gum, shows distinctly the endothelium of blood-vessels, Fig. 4 will show the blood-vessels greatly distended, with their walls pressing against the Malpighian layer, the cells of which are flattened and compressed.

These sections were stained with hæmatoxylin (Weigert), but others treated with other stains have invariably displayed the same arrangement, the same exaggerated production of the usual constituting elements.

The continuation of the blood-vessel onto the free edge of the gum explains the frequent small hemorrhages met with in such cases, and which are so difficult to control or to stop quickly. The walls of the vessels, not being protected by other tissues, tear and fray with the greatest ease; the vessels then disgorge themselves, become flaccid, and after a while are closed again by a slight clot. But a slight increase in the blood-pressure, as in walking or lowering the head, or even in talking, forces out the clot, and the bleeding commences again.

With regard to remedies, I have tried every possible astringent, and even caustics, without result. Actual cautery does not always answer; indeed, at times the growth has increased after such remedies, probably because cauterization acts as an irritant.

The only remedy I have found efficacious is a free excision of the spongy or softened portion of the gum, and, after the surface has been left to bleed for a few minutes, to produce a fairly consistent eschar by actual cautery. The eschar will peel off in a day or two, leaving a healthy, granulating surface beneath, which will take the appearance of the gum after ten or twelve days.

During this time it is well to advise the patient to use alkaline solutions as mouth-washes, so as to neutralize any acidity of the saliva, and to keep the mouth clean; also prescribe disinfecting mouth-washes, three or four times a day; and a solution of carbolic acid, four per cent., to be kept in the mouth for a few minutes.

Therefore, on the strength of histological research, one may dis-

card absolutely the idea that in hypertrophy of the gum, in the softening, in fungoid growths, there may be any neo-formations, even though a superficial examination, and the microscopic aspect, might lead one to suppose that these growths are a proliferation of the mucous membrane.

Reports of Society Meetings.

NATIONAL DENTAL ASSOCIATION.

(Continued from page 666.)

Second Day.—Morning Session.

SECTION III., Operative Dentistry, was called, and Dr. J. T. Crawford, chairman, made a partial report, offering a paper by Dr. N. S. Jenkins, Dresden, Germany, entitled "Porcelain Enamel Inlays."

Dr. Jenkins then read his paper, of which a brief abstract follows:

The process and material presented is the result of seven years of study and experiment, progressing through its various stages by at once trying in the mouth the product of the laboratory, scientific experiment and practical application going hand in hand. The successful use of this finally completed method for over two years by a considerable number of the foremost dentists of the world justifies the announcement that the problem of making, with mathematical accuracy and scientific certainty, absolutely perfect fillings in diseased teeth has been completely solved. As to what constitutes a perfect filling: it must fill the cavity so exactly as to exclude moisture; it must be of a substance which will not disintegrate nor change its original form either through chemical action or mechanical force; it must have a surface so smooth that it can be easily kept clean; it must be a poor conductor of caloric; it must retain the color and shape of the teeth; it must be applicable to the most desperate cases and susceptible of being used without too great strain upon timid children and delicate patients, as well as ordinary patients; and its working must not make too great draughts upon the strength and nerves of the operator. Last of all, it must be possible for any good dentist

to use it with the certainty of obtaining infallible results. All these qualities are possessed by the material which I have called porcelain enamel. A substance which can be melted in a gold-foil matrix is necessary, in order to permit its use by any competent dentist in cavities in any part of the mouth, as an ordinary and regular proceeding in daily practice. Only the most exceptionally gifted and patient man can obtain such results with platinum, owing to its intractability. A perfect impression is the indispensable foundation of a perfect inlay. Gold-foil No. 30 seems best adapted to the great majority of cavities. To keep the gold-foil impression exact during fusing a paste of powdered asbestos and water is found best adapted to hold the impression in place in the melting-pan, evaporating the moisture gently in drying out. The heat of gas is insufficient for fusing. The porcelain enamel has sufficient strength to withstand the force of mastication, and a surface which resists all chemical action except that of hydrofluoric acid. It fuses at a temperature of 800° to 900° C., the melting-point of gold being 1075° C. This difference is sufficient to prevent melting the gold matrix unless through great carelessness; it also prevents the gold-foil from adhering to the porcelain enamel, from which it is easily stripped. The fit of the inlay is so exact that only a slight film of cement is necessary for retaining the filling, but it is important to groove the inlay with a small diamond disk, and to form small undercuts in the cavity before setting the inlay.

In using phosphate cement in setting inlays it is well to saturate the cavity with carbolic acid, drying it out after a few minutes, rendering the pulp less sensitive to the irritating action of the phosphoric acid. A cement with very fine powder, and which does not suddenly crystalize, is to be preferred. The powder composing the inlay should be mixed with absolute alcohol, which evaporates with less disturbance of the particles than water, and because it carries no deleterious substance in solution. In the selection of color it is well, for small inlays, to choose a color slightly darker than the tooth except for proximal cavities, where a lighter color is often indicated. Selecting the color after the tooth has been dried under the rubber dam is always misleading: the color must correspond with that of the tooth in its natural moist condition.

In the beginning the operator must be prepared to give this work more time than for his accustomed method of gold filling, but the work is less exhausting, more remunerative, and far more satis-

factory, and is more merciful to the patient. The porcelain enamel adheres fairly well to platinum, and where roots are to be banded for crowns the visible portion of the band can be covered with the enamel to great advantage.

DISCUSSION.

Dr. John I. Hart said that he was impressed with the feeling that this Association owes a debt of gratitude to Dr. Jenkins for this exposition of his method. The interest manifested in this high class of work is a refutation of the idea that dental science is drifting towards commercialism; that it is lacking in æsthetic refinement. Individually Dr. Hart said he preferred a higher fusing body in a platinum matrix, which if properly annealed does not offer the difficulties portrayed in the paper. By the use of platinum as a matrix it is possible to try it in the cavity, and if the contour is not sufficient more body can be added, which is impracticable by Dr. Jenkins's method. In order to carry the platinum into deep cavities, Dr. Hart's method is to take an impression of the tooth and cavity in modelling compound, pouring oxyphosphate of zinc into the impression, thus obtaining a replica of the tooth and cavity which will stand the burnishing of the platinum with the cavity and over the margins. By packing body into this until it is two-thirds full. When cool it can be carried to the cavity in the tooth and pressed home, thus securing a perfect adaptation. This is better than to form the matrix in the cavity of the tooth. When the cavity is extensive, hydrofluoric acid flowed over the inner surface of the inlay will roughen it and thus enable a better hold for the cement.

Dr. Darby said there was no subject he was more interested in than that of porcelain inlays. He had had ample opportunity of observing Dr. Jenkins's artistic methods, and to say that he was charmed would not half express his opinion of the beauty, accuracy of fit, and perfection of color which so perfectly fulfils the needs of the case. At a distance of twelve inches it is not possible to detect which tooth has an inlay, or to distinguish the porcelain from the natural enamel. Of course it requires experience to make it perfect, but by this method a perfect inlay can be made, and it is one of the greatest of recent improvements in dental practice. It is not a method for the careless man; care is required at every step, but any one who is competent to practise dentistry can, with

painstaking efforts, obtain results which will be eminently satisfactory to both himself and his patients.

Dr. C. N. Johnson said the profession was greatly indebted to *Dr. Jenkins* for his well-cut, clearly defined, easily understood description of his methods, but a word of caution is necessary, for it should not be supposed that this method is one that can be readily picked up by the average practitioners. There is nothing in operative dentistry that requires such absolute accuracy in the minutest details as this work. It is advisable that a man should know what he is undertaking, and not go into it unadvisedly. The requirements are severe in every detail. The ordinary operator will have his gold filling completed in less time than is necessary to prepare the cavity and make the matrix for a porcelain inlay of this character. When a gold filling is properly made you know it will remain there; there will be no leak at the joint, for there is no cement to dissolve out; it is in perfect contact at every point. So while we deplore the show of gold in the mouth, a gold filling is nevertheless preferable for many reasons.

Dr. Joseph Head said that *Dr. Johnson's* remarks reminded him of the French woman who regretted that she could not have her teeth filled in New York, because the New York dentists used nothing but gold. The reply was made that gold was the only permanent filling, but the lady said she preferred a beautiful white filling to one that was merely permanent.

As to permanency, we know that inlays have lasted and do last: even the old glass fillings, which turned dark by the action of the saliva, have lasted eight and ten years, and seem likely to last eight or ten years longer. While it is true that some dentists succeed better than others, any dentist who is capable of putting in a good gold filling is capable of putting in an inlay. The average life of a gold filling is not over five years, and why should we ask for more from porcelain inlays? Of course, they cannot be put in with the ease with which you would pack in gutta-percha. The man who undertakes it will have many disappointments before he reaches success, but let him look back to his first gold fillings and compare them with his present work, and he will not expect his first inlay to be satisfactory or perfect.

The question is not, however, whether a good operator can do this work, but it must be borne in mind that the *Jenkins* porcelain is only two years old in its present perfected form, or three at the most; that it is a low-grade fusing body. I hold that at present

the method and the material are on trial. It is comparatively new and untried. We are not yet prepared to pass judgment upon it. All porcelain when hot contracts, and there is the risk of distorting the matrix; but with a platinum matrix it can be partially filled, and when it is replaced in the cavity the edges can be burnished to the cavity walls again and more porcelain added, making the edges almost perfect. This possibility of a second burnishing seems very desirable. The question of choice between a low- or a high-fusing body resolves itself into that of whether a better adaptation can be secured by a platinum or a gold matrix. If platinum is badly treated and not properly annealed, it is a harsh material, but when properly annealed it is about as soft as lead, so that there is no difficulty in obtaining a perfect matrix with it. Whatever method be adopted, mechanical skill and due care will give good results; but without this, good results cannot be expected from any system. I believe, however, that with equal skill and care in the long run a high-fusing body in a platinum matrix will give the greatest satisfaction.

Dr. George Evans said that he had recently been so fortunate as to secure Dr. Jenkins's set of enamels and inlay materials. He had not yet had the opportunity of testing the inlays, but had made some experiments with the process in enamelling gold crowns, producing aesthetic results which he would exhibit at a clinic. Dr. Jenkins's porcelain offers great advantages in enamelling the labial surfaces of all-gold crowns, the gold crown with properly strengthened cusps offering great advantages in perfect adaptation, and when enamelled in the exact shade required, as can be done with the Jenkins porcelain enamel, the result compares favorably with the English tooth.

He had investigated the question of high- or low-fusing bodies from an absolutely disinterested stand-point, although prejudiced against the low-fusing body; but after seeing the wonderful margins, the close joint, the strength and the simplicity of the process, he is now convinced that the Jenkins material is fully equal in these respects to any high-fusing body. Personally he cannot speak as to its durability, but he is willing to take the word of such men as Dr. Jenkins and Dr. Darby.

Dr. H. J. McKellops said that, as is well known, he is emphatically a gold worker. For the corner of a front tooth nothing can equal platinum gold: nothing can touch it; you cannot wear it out: with nothing else can you accomplish such grand results, and he

is astonished in travelling the world over to find that it is not more generally used. Porcelain inlays can probably be made with greater ease and comfort to the patient, but when you want durability, platinum-gold is the thing. It gives absolute satisfaction in every way.

Dr. Ottolengui.—Discussion is a failure when it does not reach a finality, when only the same old statements are reiterated on both sides. Such discussion convinces no one. It still remains a matter of personal opinion whether we shall use a low-fusing body in a gold matrix or a high-fusing body in a platinum matrix. We are told by the advocates of the latter that it can be returned to the cavity and burnished a second time, thus overcoming shrinkage. One side says this cannot be done with a gold matrix; the other side says that it can. Platinum requires reburnishing because it does not make a perfect matrix. In any cavity where a gold matrix can be adopted perfect results can be attained. An amalgam filling which occupied the anterior proximal and occlusal surface was removed from a molar tooth. This was replaced with a Jenkins inlay, made in a gold matrix. When it was inserted no fault could be found with the edges. He does not believe that it could have been done with a platinum matrix. It is proposed that duplicate cavities be prepared and filled by the different methods respectively, and have the question definitely settled once for all.

Dr. Jenkins, in closing the discussion, said that the special claim he made for his system was its *simplicity*, without in any way questioning the fact that equally good results could be obtained by other methods, but at the expense of more time and greater labor: but why spend the time in laborious methods when it can be done in a more simple, easy, and rapid manner? In regard to Dr. McKellops's remark, there is no doubt but that he attains magnificent results with platinum-gold, but there are but few who have his skill in handling platinum-gold. Restorations in porcelain enamel are the nearest approach to nature possible to dental art.

AMERICAN ACADEMY OF DENTAL SCIENCE.

THE regular monthly meeting of the American Academy of Dental Science was held at Young's Hotel, Wednesday evening, May 3, 1899, at six o'clock.

A paper was read by Edwin T. Darby, M.D., D.D.S., of Philadelphia, entitled "Dental Education a Problem."

(For Dr. Darby's paper, see page 705.)

DISCUSSION.

President Cooke.—I will call on Dr. Kirk to open the discussion.

Dr. Kirk.—I had not an idea of what Dr. Darby's line of treatment of this subject was to be, and I had hoped that I should be able to hear what Boston has to say about it before Philadelphia was laid under further contribution.

I cannot appreciate what your interest is in this matter, but if it is similar to my own, it seems to me to be the most burning question that we have before us as professional men. In the early part of the essay my heart began to run down into my shoes with the feeling that perhaps Dr. Darby proposed to maintain that we were asking too much of our dental students. It is certainly in evidence, both from what has been presented to us in the essay and also from the observed facts in the case, that dentistry has grown, and it simply means that the dental practitioner to-day must be a more highly educated man than he was years ago when dentistry was new. Some old wiseacre, I have forgotten who he was, originated the saying that "every man is the architect of his own fortune." Another has paraphrased that with the statement that "every dentist is the architect of his own professional career," and the simile is a very good one. But the question suggests itself, Are we actually making architects in the profession of dentistry? It is clear to my mind that unless a man is scientifically educated in all that pertains to his profession, and has a thorough understanding of its fundamental principles, he cannot be called an architect. He may have a relation to the profession, but it is not an architectural relation; in some cases, perhaps, the relation might be described as that of hod-carrier or stone-mason. But I might go one step further and say that we have to be more than architects, for there is a wide difference between knowing how to do a thing and being able to do it, so that we have to unite both of these elements in our professional work.

As to the scientific side of it, I question if Dr. Black was not right when he said to me only last winter that we have only barely scratched the surface of the scientific possibilities of our profession; that hitherto we have been too largely a body of empirics,

and have conducted our work in much the same manner as the ordinary cook manages the culinary department, and that seems to be the mental attitude of the student until he is trained differently. I think a man who has taught students will understand my meaning, for he has no doubt observed that when he is endeavoring to elucidate principles, his class is likely to go to sleep, unless he is a gifted talker; but if, peradventure, he gives them a formula for a tooth-wash, or a method of treating pyorrhœa alveolaris, or hints on the proper selection of materials, the note-books come out at once and all that matter is carefully jotted down. They are anxious to get recipes and formulæ and short cuts to results without being particularly interested in principles. I am glad to say that that sort of an attitude does not last throughout the course, because it very soon becomes apparent to those men that they cannot successfully practise unless they know something about principles, and I believe that to be the correct method of teaching,—to equip our men with fundamental principles, so that they may be the architects of their own professional practice.

Now, as to the question of eliminating studies from the course as now given to the dental student. I do not believe that one of these could be safely dropped from the curriculum. I believe that the curriculum should be still further broadened. I am willing to admit that the time we have allotted to us for the dental course is all too short. We need an extra year, not only to add some features to the basis of professional training, but we need it for another purpose: we need it in order to give an opportunity to a certain selected class of men who are increasing in numbers: men who will be willing to take up lines of original research. It is quite impossible for the busy practitioner to devote the time or energy necessary for this work,—and both of those elements are needed in order to accomplish much in this line,—but there is not a man within the sound of my voice who will not recognize the dire need for men who will be willing to devote some time and energy to professional original research which will accrue to the advantage of all dental practitioners. The time to get that work done is before a man becomes loaded down with the cares and obligations of practice; and I believe that if we had the fourth year added to our dental course we could induce a fairly good number of men to take up and continue the work of original research. The objection might be raised that those men would not be properly trained for such work. That may be true, but they

would at least have the ability to follow out the suggestion and work under the supervision of men who are interested in such work.

It is not Utopian, in my judgment, that we should have some method of testing an applicant to find out whether he is a suitable man to enter upon the study of dentistry, of "selecting timber," as the essayist has suggested. I believe that the time will come when we can select our dental timber to that end. I believe that some satisfactory test will in time be evolved so that we may know how to properly select men who will give assurance of becoming good dentists, and who will also be capable men for carrying on the work of dental education; but until that is done, we at least have this mode of relief,—that is, it should be the duty of all the colleges during the freshman year to make it a test year, a screen, as it were, by which to sift out those who are not likely to become successful dentists and retain those who are fit to go on. If our professors and instructors are men who really have the interests of the profession at heart, they can readily pick out the men who are fit to proceed: and those men who are incompetent to learn what is required of them should be advised, as soon as that condition is known, to give up the profession of dentistry and take up something which would be more within the range of their mental attributes.

The question of technical training is one in which I have very great interest. I believe that the technical course of instruction in the laboratory has been one of the most satisfactory additions to the curriculum that we have ever had. To show you what the results of modern technical training are upon the raw student, I would like to mention a special case which came under my observation. The man I refer to matriculated at the University of Pennsylvania at the beginning of the year now closing, and as he came to the desk I saw before me a man perhaps forty years old, with a frank, open-eyed expression, and it developed that by trade he was a locomotive engineer. The qualifications that he presented as evidence of sufficient preliminary education were somewhat of a patchwork variety. He had gotten his education here and there in an irregular way, at odd times, but when put together the sum total was sufficient to meet the requirements demanded by the school for admission. The man showed the evidence of being resolute in his purpose and of being determined to accomplish what he was about to undertake, which of course was in his

favor; but what struck me more particularly during the whole interview was the method by which he picked up the pen to sign the matriculation book. He handled it so clumsily that my heart failed, and in response to my question as to whether he had any mechanical training, he said he had had none whatever, except in relation to heavy machinery. However, he was so honest in his purpose that I determined to give him a trial. I called the teacher who had charge of the instruction in the technical department and said, "I want you to keep an eye on this particular man at his work. I am anxious to know what sort of progress he is going to make. He may be able to get hold of the intellectual side of what is required of a dentist, but I have my doubts about the technical part. I am afraid that he has reached the point when his muscles are set, and that he is going to fail, so I want you to pay particular attention to him and let me know how he gets along." He was kept under close observation, and for the first two or three weeks the instructor reported that it was a decided case of raw material, and that he would not have much hope were it not for one quality that the student possessed,—that of "stick-to-it-iveness." He was patient. He was determined to do his work well. He has now had four months of technical training, and to-day I consider him one of the best-trained students in the technical department. By perseverance he has overcome that clumsiness which first caught my eye, and I mention this case at length to show you how systematic training has developed what will be a good operator at the end of the course out of apparently unpromising material. I have nothing to add to this, except to emphasize again the importance of a fourth year to give us time to teach more thoroughly the principles which the dental student should know; to allow him to become more perfect in the technical part of his work, and especially for the purpose of encouraging the work of original research.

Dr. Smith.—I have been very much interested in the excellent paper presented by our distinguished guest, Professor Darby, but it is a most difficult matter to grasp the salient points of a paper in listening to it once, especially when a man comes to a meeting after a hard day's work, and the machinery of his mind is not up to its usual condition.

I understood our essayist to say that our profession was an honorable profession, equal to any of the other professions, and I assent that it is an honorable profession; but I do not assent that at this speaking it is equal to the position occupied by other professions,

notably the professions of law, medicine, and divinity; and why? Simply and solely because it lacks the preliminary intellectual training. Dr. Darby would be content for a time with the present conditions; he seems to be content with the graduate of the high school. But other professions are not content with the high school graduate, and just so long as we content ourselves with that or with something less as a requirement for admission into our schools, just so long will we occupy a less honorable position in the estimation of the public. The better schools of medicine, law, and divinity are graduate schools, and there is no earthly reason why in a short time our dental schools should not be graduate schools, and require a degree of letters or its equivalent to enter upon the study of dentistry. I will admit that many a man who may possess his A.B. is not fitted at all for dentistry. Very likely he would not make a success in medicine or surgery. Possibly he would make a good minister. If so, that is the profession he should enter.

There is no denying that technical training is needed to give our students the knowledge to do that which will be required of them in their practice. I sometimes feel that the curriculum as it stands in our schools to-day has been brought in at the expense of technical education. Briefly I would map out this course for the candidate for the dental school: I would advise that he have a degree from a technical school, like the Institute of Technology or any of our polytechnic schools. This would give him a technical training sufficient to enable him to readily grasp the mechanical side of dentistry, and also give him an intellectual training equal to that obtained by the study for the degree of Master of Arts. The idea of a liberal education to-day is different from what it used to be, and the best educators are not agreed as to what should be required of the student.

Assuming, then, that the dental student should be a man of letters or its equivalent, what next? I cannot agree with Professor Darby's idea that he should also be a graduate of medicine. I may be a heretic among you, but I do not believe it is necessary for a man who intends to practise dentistry to hold the degree of M.D. before commencing the study of dentistry. The holders of the better dental degrees to-day are better educated in medicine than were the older graduates of medicine in their day. Now, if a man has to be a graduate of medicine before entering on a course in dentistry, it means that he must take a four years' course, granting that he goes to the better schools. Those familiar with the cur-

riculum of the medical schools are aware of the contention that exists among the educators in those schools, and know that there is a great variety of opinion as regards medical education itself. The dental student on his way to the dental degree should have for his first year thorough courses in anatomy, physiology, chemistry, both general and physiological, histology, embryology, and bacteriology. In his second and third years his time should be given to studies bearing directly on his special work; special care and much time given to his technical training. Time and again have I seen men of good intellectual development, bachelors of arts, masters of arts, and graduates of medicine, fail of graduation in dentistry because they were unable at the close of their work in the dental school to come up to the standard in dental work; and when they find that they have been left over, they get thoroughly indignant, and I have had them say to me, "Dr. Smith, I cannot understand this. It is the first time in my life that I have ever fallen short in an examination." They fail to grasp that technical work cannot be gained so easily as book knowledge.

I assent most fully with the ideas expressed by Professor Darby, and also by Professor Kirk, that our course should be extended, for I believe we are requiring too little from our students at the present time of that which they should know; at the same time, some advantage might be gained by increasing the length of time given to some studies and decreasing the time given to others. For instance, I think that in some schools anatomy for the dental student might be cut a little; also physiology; in fact, some medical teachers think they might be cut for the medical practitioners. But before we attempt to bring about this four years' course, I want first to see the short-term schools come up to the long-term schools. The long-term schools in their three years' course give twenty-seven months' instruction, and if the short-term schools did add another year to their course, the time of instruction which they would give to their pupils would then only be equal to what the long-term schools are now giving.

So, to sum it up, what I want to impress upon you is, first, the importance of general education to lift our profession to the same recognition as the other learned professions. I admit that it is an honorable one, and I want to see every man in it willing to stand erect, with head up, and say, "I belong to the dental profession, and I am proud of the profession and its members, for I know that they are doing an immeasurable amount of good in the relief of pain and

the promotion of the general health of mankind." Next, I would like to see the short-term schools come up to three years, of nine months each. I think we may rest there until we can bring about the requirement of a degree of letters, or its equivalent, for entrance to dental work. The minute you do that, gentlemen, you have dignified your profession; you have put it on a level with the other professions, because then the *personnel* of the dental student is the equal in training and culture of the *personnel* of the students in all other professions. Then, when the fourth year is added, it should be added strictly and solely as a technical course.

Dr. Kirk.—There was a point brought out in the last speaker's remarks regarding which, if I understood the gentleman correctly, I shall have to take issue with him.

He stated, as his experience, that men who have taken the degree in letters and who have gone thereafter to a dental college have met their first failure to pass an examination, and that the failure has always been along the lines of technical work, and he attributes this to the fact that they do not understand that technical work is harder to absorb than book knowledge. I quite agree with him as to the condition, but disagree with him as to the diagnosis.

Some years ago I made an attempt to learn to ride the bicycle. It was a hard struggle, for the bicycle seemed to have a natural antagonism towards me and refused to be conquered, and I never succeeded in riding with any feeling of security. In view of my experience, I have stood and looked with wondering amazement at the ragamuffins and urchins riding on almost any part of the wheel without apparently giving any thought to the management of it. I began to observe the thing somewhat, and I found that every man I knew who had taken up the bicycle after he was thirty years old developed that anxious expression known as the bicycle face, and was constantly on the alert for difficulties, and I think we have in this question of learning to ride the bicycle a condition quite analogous to what we have in the matter of the technical training of students. There is, during youth, a period of muscular impressionability, and unless that is taken advantage of in its plastic period, we can never secure results as satisfactory at a later period. That fact was recognized years ago by Sir John Tomes. I was astonished when I came to read the record of that man's thought on dental education. He clearly recognized years ago the fact that there was an impressionable period, when the muscles could be trained to a greater degree than if delayed until later in

life; and that thought is the foundation of all technical education. It is very much easier, as you know, to move a growing thing than it is to move a thing which has reached its type limit. That principle is fully recognized and taken advantage of in orthodontia. Taking all these things into consideration, it seems to me that the reason why those men who have had sufficient intellectual training to take the degree of A.B., and yet have failed in their technical examination, was because their technical training was taken up too late in life.

I object to the idea in general that technical training should be concentrated in the fourth year. It would perhaps be all right to leave some special cases until the fourth year, but the student must have manual training long before the fourth year, or else he is a dental failure.

There is one other point regarding which there is an apparent difference, and that is the question of preliminary education. If there is any question that we want to get into right line, it is the question, What do we mean by high standing? What is the minimum that we will accept as the proper standard for entrance into dentistry? Shall we require the same standard as is required by schools of divinity? I think Dr. Darby's suggestion, that we require a certificate of graduation from a high school, or its equivalent in examination, is the proper point for the beginning of the dental education.

Dr. Smith.—I presume, talking at random, that I have misstated what I believe. I thought I had expressed myself clearly, yet some of you seem to have misunderstood me, particularly in regard to technical education. I believe that the preliminary training should be gotten in a technical school. I should be very much pleased if we could get our candidates for admission from such schools as the one the gentleman has mentioned,—the Institute of Technology,—but just at present I fear that is asking too much, for the graduate of that school has received just as much mental training on his way to his degree as does the student on his way to the A.B. degree in Harvard College, while at the same time, he has acquired a great deal of technical skill. But I believe that we should demand more than a high school certificate. Now, the Harvard school will not admit any one on a certificate of any high school, for two reasons,—viz., first, it does not look right; secondly, they do not accept such certificates in the better schools of law, medicine, or divinity.

Dr. Fillebrown.—I want to endorse emphatically the suggestion of Dr. Kirk, that we have the burning question before us. New systems of education are coming up, and by and by we shall come out into the open field, where the view and the way is clear. Out at Cambridge there are a dozen or more courses which a student may take, each one different, and each brings the same and equally honorable degree of A.B. A person to-day taking the examinations in all the courses would require at least twenty years to do it.

Harvard is also having this same upheaval in regard to medical education, and is coming nearer to the plan proposed by President Eliot. Medicine is becoming so broad that no man can compass it within a reasonable length of time. President Eliot's plan is to establish a university of medicine, which shall teach all that has to do with animal life, in health and sickness. There are certain studies which must be taught as a basis, such as anatomy, physiology, and chemistry, but when a student has learned those, then he may branch off into the special field in which he intends to practise. No man should be expected to know as much as his professor does about each study,—it is a mistake to expect it. It is the teacher's duty to impart to the student whatever it is necessary for him to know of the subject which he is teaching. If the student can get the conclusions and understand the principles on which they are based, then it is unnecessary for him to go over the whole field. Take, for instance, physiology, in which it has been stated here this evening that the student is required to make one hundred and twenty experiments. It is not reasonable that a man should go over the whole ground if twenty-five or thirty experiments will cover the part relating to his specialty. So much of each of the basal studies as will relate to his specialty should be taught to each man; then when he is given the special instruction regarding the field in which he is to practise, he will be just as well educated as the next man, and just as honorably so. It is proposed in this university of medicine to bring all the branches under one administration: then a man will go in and select his course, and others will select theirs, and yet each will have the honorable requirements for graduation, the same degree, with perhaps a certificate which shall indicate to the public what specialty that man is accomplished in. Another advantage the university system of education has in giving the same knowledge of principles to all the men is the fact that, if the student is not quite certain which branch he is best fitted for, the first two or three years of his education will not be lost.

Technical education, I believe, should commence in the preliminary course. At the same time that we are working for the A.B., we should also endeavor to get a certain degree of technical training. Even earlier than this a person can demonstrate that he is or is not capable of becoming a good dentist.

Dr. Hamilton.—There is one point that I think is too good ground for us to neglect to sow a little seed. I feel from my own experience, and from that of others, that there is a possibility of a dentist suffering from nervous strain from defective vision, and I feel that a student should be examined by a competent oculist. If there is a defect, it might not be enough to unfit a man for another occupation, but still would unfit him for dentistry, and he should be advised of the fact.

Dr. Werner.—I hope that if we reorganize our methods of teaching, the technical training will come in among the first year studies. I think anybody who has had anything to do with students, or who reflects on his own career, will see the importance of that. Physiology interests all educators. Neither does a purely medical education suit us best. We need a mixture of a mechanical, surgical, and medical curriculum at our dental schools.

Dr. Eames.—The question of physical disability, raised by Dr. Hamilton, is an interesting one, to which I have given some attention. If these physical defects could be determined before the student enters college, it is so much the better for him and for the school. I remember the case of a man applying for admission who had lost two fingers. He was not debarred from entrance, because it was possible that he might be able, notwithstanding this loss, to do as well as some other man with the full complement of fingers. During the first year's training at the school these infirmities and disabilities should be taken into consideration, and whatever else would disqualify a man should be found out during this time.

As to the matter of what we shall require of our candidates for admission, when we state in our catalogue that they must give evidence of the equivalent of a high school education, we have in mind a certain standard of high school. Now, the standard should be high and broad; for it is necessary that there should be a certain discipline and training of the mind. I care not where the individual gets it, or in what particular study, be it in Latin, mathematics, or physics, but he needs a certain amount of mental training to enable him to grasp the pathological questions with which we

have to deal. It seems to me that too little time is given to finding out what the result of our teaching has been, and to watching the development of students under our care; I believe, also, that quizzing and clinical work should occupy a larger part of the teaching hours.

Dr. Andrews.—In the matter of education, I think we are drifting to just what Dr. Fillebrown has told us,—an idea I have advocated for many years,—that is, to the development of a medical university which shall teach all branches, medicine, dentistry, and other specialties, and shall require the same entrance examination from all those who wish to enter, and shall give the same basis of instruction to all; but giving, in addition, special courses, so that the student may fit himself for any branch in which he may wish to practise. It is simply applying the university idea to the study of medicine and its specialties. A man in Harvard University is obliged to take eighteen courses to get through. Another man may take entirely different courses, and yet get the same degree. It should be thus in a medical university. It seems to me that if a man goes through Harvard University with the idea of taking up a profession afterwards, he can find courses there which will educate the fingers as well as the brain, and which will be of advantage to him in whatever profession he desires to enter.

I thoroughly believe in this idea of technical education for the man who wishes to become a dentist, and that the student should be tested as to his capability in this direction. It should be found out in the first year whether he is capable of performing his duties as a dentist, and if he does not show this element of technical ability, he should be dismissed and not allowed to continue.

Dr. Wilson.—A good many years ago, when Dr. Harwood was president of this Society, he made the statement that dentists ought to serve an apprenticeship as sculptor, and also as jeweller, before beginning to practise their profession.

I also remember that Dr. White, in an address before a graduating class, insisted that no man should enter the medical school unless he had graduated from some college, and there are a great many who believe that all dentists should be graduates of medical colleges.

Now, if these statements are true, and a man should try to comply with all these conditions, he would be at least thirty years old or more before he would be able to start out in life and build

up a practice. As Professor Darby says, the element of time is of considerable importance, and perhaps the question of how to get a dental education in a reasonable time will be solved if the system of education referred to by Dr. Fillebrown as being advocated by President Eliot is brought into existence. I firmly believe, however, that the ultimate result will be, that a special degree will be given, showing that a man is fitted for the special calling in which he is engaged. I think Dr. Smith has been misunderstood in his advocacy of an additional year in the dental school. I do not believe, myself, and do not think that he intends to convey the idea, that the technical training in the regular course should be any less that it is at the present time.

Dr. Smith.—Neither do I. I have tried twice to make my position clear on that point.

Dr. Wilson.—I am constantly surprised by the small amount of practical knowledge possessed by graduating students. I am one of those who think the medical degree is not essential. It is a good thing to have a good, broad education, and the more a man knows the better; but in all educational matters the element of time must be considered. It seems to me that the best way to advance our profession is to raise the standard of our dental schools.

Dr. Fillebrown.—What we want this evening is to make this discussion practical. I would like to ask one question of any of the gentlemen here advocating more thorough instruction in techniques, and, particularly, of Dr. Kirk. The most of our schools commence about the first of October. Now, is a month's strict attention to technical work sufficient to test the student's technical ability? If so, why not take the month of September, and have our students come and give a little attention to that?

Dr. Kirk.—I should not regard a month as sufficient if you want to thoroughly test a man's capability to do technical work. Of course, you may get a superficial idea by observing how he does things. In the case that I spoke of, the manner in which that student picked up a pen made me question whether he had technical ability, and it was really some weeks before I was satisfied upon this point.

Dr. Fillebrown.—How many weeks did it take to satisfy you that he had the element you were looking for?

Dr. Kirk.—Not less than six weeks.

Dr. Fillebrown.—He was attending to other forms of work at the same time, was he not?

Dr. Kirk.—Yes: the usual studies of the school.

Dr. Fillebrown.—If he was not so occupied, it would shorten the time to find out what you wanted to three or four weeks. I am proposing to take him before the other studies begin.

Dr. Werner.—In some European schools, metallurgy, the physical working of metals, and dental technique are taught in the first year of the course.

Dr. Kirk.—A great many American schools teach them in the first year.

I would like to add one more word. I feel that I am taking up a great deal of your time, but the subject is so intensely interesting to me, I trust you will pardon me for so doing. The idea referred to by Dr. Fillebrown as having been suggested by President Eliot,—that of founding a university in which everything relating to animal life is taught, and the giving of a degree to those taking prescribed courses,—I think is entirely correct, and if the same principle is applied in the preliminary education before we come to the dental course, I should consider the plan a very desirable one.

Now, let us see where we stand to-day as between dentistry and medicine. Dr. Fillebrown has said that there are a few studies which form the basis of the education of all those who study any branch of medicine; and he named anatomy, physiology, chemistry, as some of them. But why stop there? Why not get at exactly what they are? It seems to me simply a question of defining what those fundamental studies shall be. In dentistry to-day we already have those studies as a part of our course. Anatomy, physiology, chemistry, pathology, histology, osteology, embryology, and therapeutics are taught on precisely the same basis as they are taught in the medical schools. We have that; it is already accomplished. The question which we really have before us is, to define the difference between the complete medical curriculum to-day and the proposed medical curriculum which shall be sufficient for the needs of the specialist. Many of the studies, we know, are organically the same, and what is now needed is some systematic organization of the several curricula leading to each of the medical specialties, including dentistry; for I hold that even now, the dental curriculum of our best schools is equivalent to that required of other specialists in the healing art.

Dr. Darby.—Just a word in regard to the preliminary education. I had in mind the high school of the better quality when

I said that should be one of the first conditions required of the student before matriculation. I did not mean by that, that the time would not come when we should demand something more; but I did not want to be in the position of the man who in his boyhood days had a friend who afterwards became President of the United States. He thought it would be a good plan to renew the old acquaintance, and in the course of his examination with the President he asked if he would grant him a favor. The President replied, it would depend upon what it was. He said that he would like to be ambassador to the Court of St. James, but was told that the position was already filled. He then asked to be minister to France, but the President replied that they had a good man there. He next inquired about the position of minister to Italy, consul-general to Egypt, and various other positions, and in each case received the answer that the places were already filled with good men. But he did not propose to go away without getting some evidence of the President's friendship, so he finally said, "Perhaps you have an old suit of clothes that you will give me." So we must not ask too much in the beginning, and then come down. Some of our colleges are receiving men without any fitness whatever for professional life: men who cannot write a single sentence correctly; men who cannot spell the word California correctly. We are compelled to go slowly in raising our standard of admission. No one would be more pleased than I to see our schools requiring the degree of A.B. or A.M. as an essential for entrance; but we cannot get it this year, and probably shall not next year; but if we can within the next few years arrive at the position where we can demand that our candidates for admission shall come to us with a well-rounded education, such as would be furnished by one of your Boston high schools, I should think that we were making progress in the right direction.

In the matter of eliminating from the dental curriculum all or part of certain studies, I am afraid that I was misunderstood. What I intended to say was, that it is the duty of the schools to curtail somewhat their curriculum, and I believe it could be done without detriment to the student. There are some studies which might be shortened, and the time given to studies which are of more importance to the dental student. If we have but three years in which to educate our dental students, would it not be better to devote at least half of that time to the studies which will fit him for the practice of dentistry? The dental student to-day

spends a year and a half of his three years in acquiring a knowledge of branches which are certainly desirable for the professional man to know; but it does not afford him sufficient time to gain that knowledge which he should have of operative and mechanical dentistry. It is a nice thing to know anatomy from head to foot, and physiology is also an interesting and valuable study, but a man cannot become a good physiologist, a good anatomist, a good microscopist, and everything else in three years.

Now, in regard to the fourth year, in which I advocated that practical work should be taught. I did not say that practical work was not to be taught until the fourth year. A man's technical training should begin as early as possible in the first year, and his development in that direction should be regarded as of great importance. My idea was that the fourth year should be added, so as to give the student a year for practice in operative and mechanical work.

I wish to thank you, gentlemen, for the interest which you have shown in my paper.

Dr. Fillebrown.—I want to move a vote of thanks to Dr. Darby and Dr. Kirk for making this meeting so interesting for us; and that we request a copy of the paper for publication.

Unanimously voted.

Dr. Eames.—I wish to say that Dr. J. D. Thomas, of Philadelphia, was prevented from being present to-night by reason of illness.

HARRY E. CUTTER, D.D.S.,

Editor American Academy of Dental Science.

ACADEMY OF STOMATOLOGY.

THE regular monthly meeting of the Academy of Stomatology was held at the rooms of the Academy, 1731 Chestnut Street, on the evening of April 25, 1899, Dr. M. H. Cryer in the chair.

A paper, entitled "Dental Lesions and their Relation to Nasal and Accessory Cavities," was read by Dr. G. L. Jameson.

(For Dr. Jameson's paper, see page 625.)

DISCUSSION.

Dr. Kirk.—I first wish to express my appreciation of the paper and of the very large number of interesting cases that the essayist

has presented. The paper is so full of suggestive points that one hardly knows what to discuss first. There were two or three, however, that caught my attention. He gave importance to the difference in air-pressure in the nasal cavity as affecting the development of the tissues or structures above the nasal chamber. I do not exactly see how a difference in atmospheric pressure, sufficient to bring about a change in the developmental process of these structures, is brought into operation, as I know of no case in which a closed chamber is the result. We have been inclined to attribute this flattening of the sides of the upper arch rather to the pressure of the cheek muscles and loss of pressure by the lip in front as concomitants of mouth-breathing. Dr. Angle has called attention to the fact that the teeth of the lower jaw erupt first, and that these form the mould over which the arch is brought into line. If the jaws are not brought into normal occlusion, the upper alveolar border loses the stimulative effect of the impact of a normal occlusion, and hence there is an arrest of growth, and the teeth do not take their normal places.

The suggestion of the essayist, that pyorrhœa alveolaris may be caused by the irritative effect of secretions which drop constantly over the portion of a tooth impinging upon the nasal floor, is a good one. I should like to have examined that case, to see if there was any other factor which could be drawn into account. I do not at all question the possibility of it, but there are a great many cases of phagedenic pericementitis in individual teeth, in otherwise perfect dentures, caused by a slight irritation from a temporary malocclusion, which becomes greater after a while. Only a few days ago I saw a beautiful set of teeth in the mouth of a young patient, apparently in good health. I made no examination of the nose, but the mouth I did particularly examine, and I diagnosed the case as one of phagedenic pericementitis of an incisor, brought about by malocclusion. The case was operated on to-day for the removal and replantation of the incisor.

Dr. Jameson.—I want to state that the first case of irritation of the nose was examined by Drs. Peirce and Kelley. Dr. Peirce said that he could find no probable oral cause for the pericementitis.

Dr. Cryer.—I congratulate Dr. Jameson upon his paper, and am glad to know that he has taken so much interest in this line of study. There have been many cases of malposition of teeth in Philadelphia which do not seem to be known to the essayist, among which might be mentioned a case of the late Professor Harrison

Allen, of this city, which was that of a patient whose canine tooth erupted into the nasal chamber, thus separating the septum from the floor of the nose.

One of the most remarkable cases, not heretofore reported, coming to my attention lately, was that of a patient who was referred from the hospital to the dental department of the University of Pennsylvania. The surgeon in charge had cut into the antrum for necrosed bone, and discharged the patient under the supposition that he would get well. The patient returned, and, on close examination, a third upper molar was found with the face of the crown within the antrum, in the upper posterior border of the sinus, and well up under the posterior floor of the orbit. If the roots of this tooth are normal in length and not curved, they must pass through the spheno-maxillary fossa, the apices of the roots thus being in close relation to the body of the sphenoid bone. I have not thought it well to extract this tooth. It appears to be healthy. Those who have studied the anatomy of these parts know how serious it might be to remove this tooth. A larger opening would have to be made into the antrum, and as the roots are in close proximity to the internal maxillary artery, and the great plexus of veins situated in the spheno-maxillary space, there would be considerable danger of hemorrhage.

In regard to anatomical specimens, there are quite a number in the museum of the dental department of the University of Pennsylvania, among them being a supernumerary incisor in the septum of the nose. Dr. Truman has a very fine specimen there, of a canine tooth with the root visible in the nasal chamber. Dr. Kirk also has a beautiful specimen, showing a retarded central incisor lying in the floor of the nasal chamber. When this specimen was found there was a very perceptible enlargement in the floor of the nose, and by removing a thin lamina the tooth was exposed, being accompanied by about thirteen supernumerary teeth, which Dr. Burchard calls "a brood of teeth," representing the incisor as the mother of the brood. I do not know of any case where there were so many supernumerary teeth associated with one normal tooth. It is a most interesting case, and was reported in the *Dental Cosmos* last year. There are many other cases which I might cite.

Dr. Jameson spoke of the inflammation of the mucous membrane of the nasal chamber, and, if I understand him, that it had influence on the teeth.

We not only have that influence on the teeth, but we also have

inflammation from the mucous membrane lining the ethmoid cells, and the passage-way extending from the frontal sinus down through the infundibulum and the hiatus semilunaris, and also through the openings from the various cells into this common passage-way. If the hiatus which carries the fluid from the frontal sinus becomes closed by the enlargement of the bulla ethmoidalis, there is only one direction in which the fluid can pass, and that is into the antrum, and as it passes into this cavity it becomes fetid, and causes inflammation that may destroy the nerves and blood-vessels supplying the teeth. I have claimed heretofore, and I believe that I am right, that superior teeth are supplied by a superior dental nerve, similar to that which supplies the inferior teeth. I have many cases and specimens in the University of Pennsylvania from which I can demonstrate that the teeth are supplied by the so-called posterior dental nerve and artery running along the floor of the antrum, covered by the mucous membrane, and giving off branches to the various teeth, then passing forward to the incisor foramina or canals, and supplying the anterior teeth. Now, if the cavity be engorged by fluid, it is bound to interfere directly or indirectly with the nourishment of the teeth situated below, as they receive the nourishment through the floor of the antrum. Hardly a month passes that one does not find teeth loosened, and even lost, by disease, not of the antrum, but of the upper nasal region,—the frontal sinus or ethmoidal cells. This has been proved by the fact that, after the nose has been properly treated, the loosened teeth become firm in the jaw. In one case I had about two years ago, after extracting the first bicuspid and removing necrosed bone, there was a large flow of pus, and by passing a probe into the antrum it went upward out of the antrum into the hiatus, and from the infundibulum into the frontal sinus. This patient subsequently passed out of my hands and was admitted into the medical department, where she was treated for meningitis. When the explanation was made to those in charge that it was possible that the diseased track spoken of was the cause of the meningitis, she was sent again to the dental department; the parts were thoroughly opened and curetted, and the patient restored to health. A great many of our rhinologists and dentists believe that disease of the antrum is caused principally by the teeth. Even the late Professor Harrison Allen claimed that three-fifths of antral trouble was caused by teeth. I do not think so. I believe that more teeth are lost by disease of the nasal chamber and its associated cavities.

The doctor spoke of a "spur" of the septum passing over to one side of the nasal chamber and thus almost closing it. Dr. Kyle, I believe, is producing an illustration, in his new work, from one of my specimens, where there is no opening left through the inferior meatus, as a great "spur" passes over and presses against the inferior turbinated bone. The inspissated matter deposited in this position may create an irritation, and through this irritation disease or necrosis of the bone may take place.

The doctor also spoke of a case of a third upper molar being passed out of the nose, the route of the passage being from the place of development through the antrum, then into the nasal chamber, and out of the nostril. I think it is more than likely that, in this particular case, the antrum was small and its floor high up, the nasal chamber passing from the septum to the outer wall of the maxillary bone. I have several specimens of this character. Dr. Kyle shows an illustration where the roots of the molar are visible in the nasal chamber. The floor of the antrum being on a higher plane and above the floor of the nasal chamber, the latter extends to the outer wall of the maxillary bone. In a skull of this kind the teeth could very easily be erupted into the nasal chamber, and having no occluding tooth to oppose it, it could "elongate" until it became free in the nasal chamber, then pass into the pharynx or out through the nostril.

The doctor spoke also of using peroxide of hydrogen. I seldom use this medicament, especially in abscesses of the jaw. On superficial surfaces or in cavities which have large openings and will allow the easy exit of decomposing pus and gases it is valuable, but in small, closed cavities, without sufficient external openings, it is liable to do much damage by producing pain and dissecting up the tissue covering the fine air-cells. In the lower jaw it may enter the cancellated tissue or the inferior dental canal, dissecting the tissue from the bone; and, I believe, it can force germs in advance of it and drive them into positions that they would not otherwise reach.

In a recent case, at the University of Pennsylvania, the patient, a woman about twenty-five years of age, had an upper right second bicuspid tooth which became devitalized, and dento-alveolar abscess formed. Her dentist had injected peroxide of hydrogen through the tooth into the surrounding tissue and fistulous opening. The gum tissue was stripped from the bone, from about the centre of the first bicuspid to the centre of the first molar. The bone died, forming a sequestrum extending from the canine tooth to the second

molar, and from the border of the alveolar process to a little above the level of the floor of the antrum. This was finally removed.

Peroxide of hydrogen, when kept, may become stronger. In this condition, I believe, it will cause necrosis of the bone more readily by destroying its nutrient vessels than through its escharotic power. It is possible first to destroy the trophic nerves, and in this way cause necrosis of the tissue.

Dr. Peirce.—I have been very much interested in the paper and in the variety of cases that have been enumerated; all have been of great interest. A case was brought to me from Reading by Dr. Tait some two weeks ago. The patient had an abscess in the palate, also one upon the buccal aspect of the alveolar process, occupying a considerable space over the region of the first bicuspid. On pressing the abscess in the palate decided fulness over the region of the bicuspid was noted, and *vice versa*. The first bicuspid contained a devitalized pulp. I suggested the removal of the tooth; the patient consented; the doctor also thought it wise, and on removal I found that the tooth had two decided roots. But, to my great surprise, I found that each root had penetrated the antrum. The abscesses on the palate and buccal surface were not relieved in the least. Fluctuation was felt distinctly, but there was no discharge from the alveoli. On placing my probe up into the socket, I found a septum of bone that had filled the space between the two roots. I drilled out the bone, and the moment I went through it the pus hissed out forcibly into the patient's mouth. It was surprising to me that those two abscesses should unite through this little septum of bone that passed between the roots, and the doctor assured me that he had treated these roots and that the tooth had not been sore. I questioned the patient as to whether he had any antral trouble. He said not, but that on one or two occasions he had found a little discharge on his pillow, which he thought came from the nose, but the nose was perfectly clear. There must have been a small opening from the palatine abscess into the antrum that produced a slight discharge, so slight that it could hardly be noticed. It was an interesting case to me.

The case I had the pleasure of seeing with Dr. Jameson was of great interest from the obscurity of its cause. There had doubtless been some previous irritation with which, by continuity, it had been associated. Another somewhat similar case I have had, with the dentist in charge, under my care. The last time the patient came in I found near the apex of the root a little roughness under the

mucous surface. I made an incision into the gum with my lance and took out quite a large piece of necrosed bone; but I could not discover in Dr. Jameson's case any necrosis. Its obscurity made it interesting, and I was glad to hear the doctor's explanation of its cause, which he thinks he has discovered.

President.—Dr. D. Braden Klye, of the Jefferson Medical College, is with us to-night, and I think we would all be pleased to hear from him. He does a great deal of work in this special line, and, with your permission, I will call upon him.

Dr. D. Braden Kyle.—Mr. President and Members of the Academy: I have been especially interested in the paper and in the discussion. As there were a number of points raised and a number of questions asked, I want to say a few words in regard to nasal obstruction, as described by Dr. Jameson. I would like to ask Dr. Kirk in regard to the cases, whether or not the isolated cases of pyorrhœa are not in a direct line with the nasal cavity?

Dr. Kirk.—Some were in the lower jaw.

Dr. Kyle.—Are the majority?

Dr. Kirk.—I could not say; I think not.

Dr. Kyle.—The reason I ask the question is, my attention was called to the condition of the septum, which was not a spur, but a redundancy of tissue, a condition which, if the septum be straightened, there is too much tissue, and it would elevate the nose, and for that reason is crowded down on one side of the septum, almost in contact with the floor of the nose. In every case in which that cause existed there was something wrong with the teeth. At present I have three cases in the clinic in which there is sinus-formation. One case was operated on at another hospital for antral lesion. The antrum was opened, but nothing was found to be wrong. Nevertheless, on examination of the nose this condition was present, and on passing the probe we could not enter the cavity, but on using methyl blue, the blue appeared in the nostril, although we were not able to pass a probe of soft wire clear to the nostril. There was a sinus from the floor of the nose directly underneath, such an obstruction as described by Dr. Jameson. In one case it was in the right nostril; in the other, in the left. It looks as though that irritation of the septum bore some etiological relation to the diseased condition of the tooth, and I think in some cases it explains the cause. In the early stage, the inflammation in the nose would set up an inflammation in the nasal mucous membrane of the floor of the nose and accumulations underneath the redundancy of the septum. That

irritation, if the upper jaw were thin, would affect the blood- and nerve-supply of the teeth, and inflammatory swelling would force the tooth down. I have a patient now in which the front tooth is directly under a projection from the septum which extends close to the floor of the nose on that side; the tooth is so loose you could pull it out; it moves back and forward. It is in such a condition that it may drop out at any time, and the dentist has a plate made ready to fit in a tooth. In that nostril he has had for years almost complete occlusion.

The point raised by Dr. Kirk in regard to air-pressure is an interesting one. How much effect actual air-pressure has in a nostril is a question. But the fact remains, if you take the trouble to examine your patients, you will find in a majority of cases that in the individual with a wide-open nostril—a nostril which will extend, so that the patient breathes freely—there is a perfectly formed septum and a regularly formed upper jaw, and that the individual who has a worm-hole nostril has irregular teeth; these two conditions go together. How much atmospheric pressure has to do with it I will not say; but this is true, that the pressure largely is counteracted somewhat by nasal breathing,—free nasal breathing. Within the nose there is no moving current of air to resist pressure. On the other hand, the current of air passes through the nose and stimulates to action the membrane that has a blood-supply, and that action brings nutrition to that membrane, and nutrition to that membrane means development; but that does not cause narrow nostril, because in many cases in which you have obstruction there is hypertrophy of the turbinates, enormously thickened membrane. Yet the nutrition is unquestionably lessened in these cases, and that would cause irregular formation or maldevelopment. I think the solution lies in a number of causes. Whatever the solution may be, I think you will all agree that wherever you find nasal obstruction you will find irregular upper teeth.

I agree with Dr. Cryer in regard to the use of hydrogen peroxide. It surely changes in strength, and at times it is an escharotic; it has the same action as strong nitrate of silver or chloride of zinc.

The condition described—as shown in a cut made by Dr. Cryer—in which some of the diseased teeth punctured the antrum, in which there was no infection, and in which there was associated ozæna, is really an interesting condition.

I think the rhinologists are really more closely related to the stomatologists in their profession than are any other specialists, and

that the rhinologist either should be a good dentist or that those cases should fall into the hands of dentists, because there are so many conditions of the floor of the nose and antrum, and all the accessory cavities related to the teeth, that require special knowledge. If there is anything that drives a patient to a doctor it is an offensive catarrh. Treatment of the nasal cavity, then, is only keeping up a nasal irritation, while the trouble is, in reality, in the antrum. If the irritation in the opening of the nose is such that gas will accumulate in the antrum, you will have all the symptoms of confined suppuration,—it is really not ozaena at all, in the true sense of the term; it is really an odor. Such a case belongs to the dentist, not to the rhinologist. The trouble is caused by the tooth.

I would like to emphasize this point, that many of the intranasal and accessory cavity lesions could be entirely avoided by careful attention to nasal breathing in early life.

Dr. Kirk.—Before Dr. Kyle leaves, I would like to say a word. When I referred to the question, I was not able to understand the difference in atmospheric pressure. I did not mean the question of impact of the atmosphere against that membrane, but I spoke of the difference in atmospheric pressure as we speak of the difference in hydrostatic pressure or in electricity of the potential. The case of the occlusion of the tooth is the condition I have supposed these rhinologists were referring to when they speak about pressure in the nasal cavity. Under what conditions can we get a state of affairs in the nasal cavity analogous to that which we have in occlusion of the Eustachian tube? I cannot understand the difference in atmospheric pressure, as I use the term, to occur in the nasal passages by any pathological condition that I have heard of. It may be due to some cause for which the word “pressure” is a misused term. But I have heard it used by rhinologists, or at least those who consider themselves rhinologists, in the sense of hydrostatic pressure. It is an unconceivable thing, as I understand, although imperfectly, the anatomy of these parts. I want to repudiate the idea that I was taking exception to the explanation of the etiology of this difficulty. I was glad to learn of it. It was quite in line with other conditions of that sort, as reported by Dr. Cryer, but I only raised a query, so that it should not be accepted as an explanation of all of these cases of individual phagedenic pericementitis, as they occur in the lower as frequently as they do in the upper.

Dr. Curry.—Apropos of the atmospheric pressure question, I

had a case recently of a palate cleft to such an extent that the nose and oral cavities were practically one. It was a case of mouth-breathing, but in that case I noticed, as Dr. Kyle stated, that all the turbinated bones were hypertrophied to such an extent that they almost filled the nasal cavity, while the nostrils were so hard and so small that I could barely get a lead-pencil through them. This case seems to show that atmospheric pressure does not produce that kind of a nostril, or condition of the membrane, because the mouth and the nose in this particular case were a continuous cavity.

Dr. Register.—In support of this exceedingly interesting paper I desire to state that a patient of mine was seized with facial neuralgia of a very severe character. Not getting any relief at the hands of his physician, he came to me. Examination brought to light the fact that he had never erupted the left cuspid tooth. There was a very small fistulous opening in the cuspid region, and the tooth was evidently lying horizontally across the jaw, with the apex pointing towards the ala of the nose. He had no nose or other complication. Under nitrous oxide I burred away the bone and lifted the tooth from its position. When it came away there seemed to have been no bone tissue between the ala nasi and the root apex. I carefully examined the tooth at the time and found quite an incrustation, now explained as a deposit of serumal calculus. The removal of the tooth put an end to the neuralgia.

Another patient has been suffering for some little time with a cutaneous trouble over the malar bone: the left side of the face being slightly enlarged. I noticed that he had some little necrosis, apparently of the jaw, from a devitalized tooth, upon which he had worn a crown. It gradually became so affected that I took it out, and the pain on the face was so severe that he could hardly touch it with his finger or a handkerchief. Some three or four days ago I went into the antrum, in a very limited way, and got no sign of any accumulation there. I then bored along the bone, which was more or less soft and I think necrosed. I treated it with sulphuric acid, fifty per cent., and afterwards packed it with a sterilizing preparation, and let it remain until it came away. I was very much pleased to get a postal from him yesterday, telling me that he was absolutely relieved from pain.

Dr. Brubaker.—I have listened carefully to the remarks regarding stenosis of the nasal chamber and irregularities of the dental arch, as well as remarks relating to atmospheric pressure. While it is possible that stenosis and difficult breathing may stand as a cause

of dental irregularity, I think it is quite possible, as Dr. Peirce has suggested, that the two are simply the effects of some underlying cause; that the defect in the development of the nasal chamber is only a part of a defect, seen also in the superior maxilla. I confess that I cannot understand how any variation in pressure or difference in pressure could cause any defects of the septum. Atmospheric pressure is practically a standard thing, as long as there is any communication with the external atmosphere. If there is a stenosis of the left nasal chamber, the air passes very freely into the right; and if there is but a very slight opening in the left nasal chamber, the air will also pass through that opening. The movement of the air through the nasal chamber is not due to any exertion of the mouth-apparatus, but is caused by contraction of the chest walls and diaphragm. They are the agents that lower the pressure in the interior respiratory passages, and it is this that makes the external pressure, driving the air into the nasal chamber and into the respiratory passages. It does not make any difference whether the nasal chamber is small or large. The air goes through both chambers, but it is not unequal: there can be no variation of pressure in those chambers, if there is any communication. I do not see how it is possible for atmospheric pressure in a healthy chamber to act as a pressure against a septum of the nose.

Dr. Jameson.—I will only say what I should have added to my paper, that all dentists should examine the mouths of their patients and make a point to investigate whether their mouth-breathing apparatus is normal or not. A patient first comes to the practitioner and then to the dentist. It is the former's duty to save the child a great deal of future trouble by proper directions.

OTTO E. INGLIS,
Editor Academy of Stomatology.

MASSACHUSETTS DENTAL SOCIETY.

THE Thirty-fifth Annual Meeting of the Massachusetts Dental Society was held at Boston, June 7 and 8, 1899, the President, Harry S. Draper, D.D.S., of Boston, in the chair. The session opened on Wednesday morning, June 7, at ten o'clock with Councillors' Meeting for the transaction of routine business and the election of officers for the ensuing year.

The President called the meeting to order, and after listening to Secretary Kinsman's report of the Thirty-fourth Annual Meeting the President delivered his annual address.

MEMBERS OF THE MASSACHUSETTS DENTAL SOCIETY,—At this the close of the fourth year of the subdivision of the Massachusetts Dental Society into districts, it would seem timely, in making a report of the condition of this and the district societies, as required by the by-laws, to call attention to the conclusions that may be deduced from our experience under the new system.

It was expected by those who were instrumental in bringing about this change that a fresh stimulus would be given by holding more frequent meetings in a more social way, but after a slight influx of members at the start, there seems to be once more a general apathy exhibited, and affairs, with one or two notable exceptions, have come to a stand-still. Several of the district societies do not meet at all, and have not even elected their boards of councillors; the largest one has met only twice since the last annual meeting. What is the cause of this indifference, and where is the remedy?

The board of councillors, consisting of thirty-five members according to the by-laws, was at an early date found to be too unwieldy to perform its duties of providing places for meetings, essayists, subjects for discussion, etc., and it was reduced in size by selecting one councillor from each district to constitute an Executive Committee, thus returning to the manner in vogue before the Society was subdivided. Even then it was impossible to secure the attendance of the members of this committee from the more distant parts of the State, and matters of importance were left to one or two members to arrange. This condition is worse than when the Society was undivided, as at that time the Executive Committee could be selected from members who were near at hand and would attend committee meetings.

It was thought that it would be an easy way to secure material for the annual meetings by selecting the more meritorious essays read at the meetings of the district societies, but when the district societies do not meet at all, or only occasionally, this cannot be considered an available supply.

The reports of the condition of the various districts, as received from the secretary, are as follows:

NORTH METROPOLITAN.

Two meetings have been held at Lynn. At the last one Dr. Chiconi read a paper on Tuberculosis. The officers have been elected, also one new member.

SOUTH METROPOLITAN.

A meeting was held at the American House, October 24, 1898. Dr. H. A. Lothrop, of Boston, read a paper, illustrated with dry and moist specimens, on "The Etiology and Treatment of Empyema of the Antrum of Highmore." The December and February meetings were not held, as we were disappointed by the essayists at the last moment. The annual meeting was held at the American House, May 1, 1899. John H. Coffin, M.D., read a paper on "Syphilis of the Mouth." Nine new members were admitted and officers were elected. Three members were dropped for non-payment of dues. The society now has seventy-one active members, besides eleven new members who have not signed the constitution and by-laws.

NORTHEASTERN.

No meetings, and no officers elected for several years past. Have lost the list and forgotten who the officers last elected were.

SOUTHEASTERN.

No meetings during the past year. No officers elected. There are nineteen members.

CENTRAL.

One meeting during the year, at which one new member was admitted and officers were elected. Fourteen members.

VALLEY.

Forty-two members. Officers elected and meetings held the third Monday evening of every month except July and August. Papers by Dr. Clark, of Northampton, C. S. Hurlburt, Jr., and W. H. Cummings, of Springfield, Dr. A. C. Hart, San Francisco, and discussion on incidents of practice, etc.

This district is the notable exception referred to previously.

WESTERN.

No annual meeting and consequently no election of officers. Tried to have Executive Committee prepare a programme for an

annual meeting, without success. Two meetings held since last report with an average attendance of one and a half. Twenty-one members. Five papers, as follows: Toothpick Discussion, Dr. Wilder; Orthodontia Radical, Dr. G. C. Hubbell; *résumé* of paper by Dr. Leon Williams, "The Empirical Method," Dr. S. S. Stowell, Dr. Schillinger, Dr. E. S. Davenport.

I have also a letter from one of the district treasurers, who says he has not collected any dues because he considered the district society a farce, and did not feel right about asking people to pay money into an apparently defunct organization.

These reports show a lamentable lack of interest in the welfare of the State Society. In at least one district a new independent local society has been started during the past year, dentists seeming to prefer this to the district society. In Boston there are so many local societies that there is not as much enthusiasm shown in regard to the State and district societies as there might be otherwise. This indifference has of course militated against the success of the Massachusetts Society, which was expected, by reason of the reorganization, to become a powerful factor throughout the State for the advancement of the profession, the enforcement of dental laws, etc. It has been suggested that if it were fully shown that the Society did have a decided influence in checking illegal practice, more of the reputable practitioners would become members. As the dental law now stands, there is no provision for prosecuting its violators, and, although their attention may be called to cases of illegal practice, it is too much to expect that those who were merely appointed to examine and license candidates should also spend their time, without remuneration, in convicting violators of the laws. There being no one to attend to the looking up of evidence and prosecuting cases, it would seem desirable that the State Society should look after this matter; and I would submit a recommendation that, if this be thought feasible, the incoming president appoint a prosecuting committee, to consist of one member from each district, whose duty it shall be to investigate, collect evidence, and prosecute any reported violations of the dental law in his district; and that the treasury of the society shall remunerate him, in part, at least, for the time spent in what is undoubtedly for the good of the entire dental profession of Massachusetts.

Another recommendation that I wish to make is that the time of the annual meeting be changed. Coming as it does during the first week of June, the Society is deprived of the advantage of

hearing from a great number of the representative members of the profession, both from this State and others, who are connected with dental colleges and are unable to give any time to other than college matters at this the examination and commencement time. There are also many of our leading men who choose this season to go abroad, whereas, were the annual meeting held in the winter or spring, there would be less difficulty in securing material and a fuller attendance insured. Some of our members from the middle and western parts of the State have also expressed a desire to have the annual meeting held occasionally outside of Boston, to accommodate those living in the extreme western part of the State, who would be much more fully represented and whose district societies would be augmented in numbers if the annual meeting were held periodically in the central part of Massachusetts,—perhaps when the presiding officer was chosen from those districts,—and I would accordingly recommend that this idea be considered by the Society and acted upon if thought desirable.

In this progressive age of submarine boats, horseless carriages, wireless telegraphy, liquid air, and the great achievements of army and navy, do not, I beseech you, let our own chosen profession of dentistry be one of those to retrograde, as it of necessity must if not advanced. With fifteen hundred dentists in the State of Massachusetts, it is a reproach to the profession that there are less than two hundred and fifty members in the State Society. There should be at least a thousand. If they do not join because they do not consider themselves intellectually or ethically fit to associate with the members, then let them strive to become so. If it be merely from lethargy and indifference, let them realize that whatever advances their profession must necessarily raise their own individual importance in the community. If it is because they are so sordid and mercenary that they begrudge a few hours and a few dollars yearly, they should know that the more the profession is elevated the greater respect for it is accorded by the laity, and the value of services becomes more fully appreciated and will be remunerated accordingly, so that, after all, the pecuniary loss so much feared will turn to gain. There are many members, and some who are not members, who attend the annual meetings, taking all and giving nothing in return, carping critics who sneer at this or that meeting as a failure, throwing mud at those who at least have made an honest effort to do something and are therefore immeasurably superior to their detractors, who shirk all re-

sponsibility and ridicule all that is earnest, not even giving the encouragement of membership.

What becomes of all our younger graduates that are yearly let loose upon the community? Why do we not hear from them as joining the State Society? The first object a young man should have after graduating and passing the State Board of Examiners should be to become a member of his State Society and assure his standing in the profession, if not also in the community. As the Society grows in members it will also grow in importance and power, and membership will be recognized as a criterion of the standing of all practitioners in the State.

Every dentist who belongs to any other society and does not also belong to the State Society is not only helping to retard the advance of the profession, but is also standing in his own light, as the larger and more influential the latter becomes, the more important are the individuals composing it in the eyes of the laity. There are undoubtedly a great many reputable practitioners in Massachusetts who apparently have never heard of the Massachusetts Dental Society, or, if they have, only possess a very vague idea of it and its objects, some of them thinking it only a means of advertising the few who really take hold and labor for the welfare of the Society as well as the profession, trying to guard the latter from the downfall to a trade, which would speedily happen were it not for the dental literature and societies. If each member of this Society should appoint himself a committee to secure the membership of two or three reputable dentists, more would be accomplished towards the end in view than could be done in any other way. If members would also willingly serve on committees, it would be a great aid. At the last meeting of the South Metropolitan District Society it was impossible to secure from the very slim attendance a working force of officers and committees for the ensuing year. As all members expect to gain something by their membership, why should they refuse to accept their share of the burden?

With this final appeal to consider what has really become a very serious matter, and heartily thanking those who have so generously given their time and study to help make this meeting an interesting one, I will not trespass further upon your time and attention.

DISCUSSION OF PRESIDENT'S ADDRESS.

Dr. Geo. A. Maxfield (Holyoke, Mass.).—I do not want to be identified as one of those who can see but one side of a question.

but it is a great pity that the whole number of dentists in Massachusetts do not belong to the Massachusetts Dental Society, and they are wrong when they think the Society is more for the aggrandizement of the officers and of the few who take an active part. It is more for their benefit than for ours, and for the solution of some problems which we must all sooner or later solve.

While the reorganization of the Society in districts is not a failure, it is not the success that we hoped it would be; but it is very certain if we will work along on the lines we are already on it will prove a great success. There must be some plan outlined in some way whereby we can create renewed interest in our district societies. I do not think it any surprise to any of us that members do not take hold of these matters in better shape than they do, for I doubt if they appreciate the amount of benefit these societies confer upon them. Any of them who know the history of the Dental Protective Association, and know how much that has saved the pockets of the members of our profession, also know that there are but a little over three thousand members in the United States, at a nominal expense of ten dollars each. Now, if the members of the dental profession will not go into anything to help their pockets, it is hard to get them to go into anything that will not help them in dollars and cents. It is hard to get them into such societies as ours. We cannot make it a success unless there are more men who are willing to sacrifice something in order to make it a success.

The President has made some excellent recommendations, and I move that a committee of three be appointed by the President to take these recommendations under consideration and make a report at the councillors' meeting to be held to-morrow forenoon.

Dr. A. J. Flanagan (Springfield, Mass.).—That portion of the President's address referring to the holding of meetings in the central and western part of the State especially appeals to the Valley District, as also his remarks in relation to the enforcement of the dental law. We believe in the western part of the State that if we have a law, and it is a good law, we should all help to support it. We also believe that the Dental Board of Massachusetts can assist us in enforcing the law. Now that the laws are enacted, we should all help out their enforcement. I thoroughly believe that something should be done by the State Society to enforce the laws at this time, and I heartily agree with Dr. Maxfield that a committee be appointed, and, if necessary, that we

should go down in our pockets and aid the committee in every way to secure the enforcement of said law.

President H. S. Draper.—I would like to hear from Dr. Boardman.

Dr. Waldo E. Boardman (Boston, Mass.).—I will say that I consulted with a member of the Board of Registration of Vermont, who informs me that each county has a prosecuting attorney, termed State's Attorney, and complaint is entered with him as in any criminal proceeding. The State Society has a man whom they term a State prosecutor, who serves without compensation, and if you do not wish to make the complaint yourself, you can write to him.

President H. S. Draper.—There would be more interest taken if the men were taken from our own Society, and I would like to inquire of Dr. Maxfield if he would like to have that committee appointed now.

Dr. Geo. A. Maxfield.—I think the quicker it is appointed the better.

President H. S. Draper.—The chair will appoint on that committee Drs. Waldo E. Boardman, D.D.S., George A. Maxfield, and L. D. Shepard.

(To be continued.)

Editorial.

ENTRANCE QUALIFICATIONS.

UPON the "Original" pages and in "Reports of Societies" in this number our readers will find a paper by Professor Darby on this subject, and the discussion following it at one of the meetings of the Academy of Dental Science, Boston. This question is now agitating the professional dental mind in this country as never before. It is by no means a new question, for it has been considered in a fragmentary way for the past thirty or more years, and has received some attention upon the pages of this journal. The subject has, however, acquired added importance through the action, year by year, of the National Association of Dental Faculties and through

the generally unwise pressure brought to bear upon that body and the colleges of the United States by State boards and by the National Association of Dental Examiners.

The question is one of supreme importance, and while no new light may have been thrown upon it at Boston, it is well that it has been given consideration in that acknowledged centre of intelligence.

It is quite evident, from the remarks made at that meeting, that the social standing was considered by some there of vastly more importance than skill in practice. This seems to be manifest in the remarks of Dr. Smith, Dean of Harvard's Department of Dentistry. He says, "I do not assent that it [dentistry] is equal to the position occupied by other professions, notably law, medicine, and divinity, because it lacks the preliminary intellectual training. Dental schools should be graduate schools, and require a degree of letters, or its equivalent, to enter upon the study of dentistry."

It is true that dentistry does not hold the same place in public estimation that law, medicine, and divinity do, but issue must be taken with the opinion of Dean Smith when he asserts that this is due to a lack of "preliminary intellectual training." It is safe to assume that, were all the members of the dental profession in practice to-day possessed of the A.B. or even the much coveted Ph.D. degree, this opposition to dentists would not be changed in the least, and the reason for this is not far to seek. The three conditions that are extremely distasteful to the average social critic are extreme youth, work, and a lack of family inheritance. This may be explained by the fact that youth is disagreeable, work is degrading, and he or she who has not received the stamp of ancestry of a certain kind is not to be regarded as fitted for a place in the social life of the world. In intellectual centres cultivation will take the place of the latter condition, and the man or woman who makes a name in either of the three professions will be accepted, but all the more will he or she be recognized if there be added to this a name renowned in the past family history. It is not necessary to dispute these conditions, for they exist everywhere and are part of the life of individuals and communities in exact proportion to the intellectual standing or the bank account.

The one crime of the dentist is that he is in a profession without age. In other words, he is of modern growth. In the second place, he works with his hands, and this cannot be forgiven; and should he be fortunate to have had distinguished ancestors, he has become

a degenerate because he has descended from the high estate of his forefathers.

It may be unkind to those who are anxious to be received upon the same equality with the professions named to say that they need never expect to have the same standing as these as long as the unrighteous standard which now prevails is in force.

Many entertain the opinion expressed by Dean Smith, that a higher preliminary training will make better dentists. Within reasonable limits this is true, but it has its limitations, and if it should ever happen that dentistry should reach the standard, set up by some, of the A.B. degree, then most certainly will the practical side of our profession be in a worse condition than it is at present. Cases might be cited where men have taken the highest degrees and succeeded subsequently in mechanical pursuits. These are the exceptions observed in all general laws, but they in nowise weaken the general proposition that in proportion to years spent in study will the manual dexterity be lost; and no one will dispute the fact that to secure the A.B. degree, as generally understood, means the best and formative years of a young man's life.

Our English brethren have been unduly sensitive over the expression "American dentistry." They seem to have regarded the term as in common use in this country, but such is not the fact. No intelligent person on this side of the water ever imagines, much less arrogantly speaks of, the work done in this country as superior to that abroad. The term originated on the Continent from the fact that American practitioners there in the earlier days pursued methods peculiar to practice here, and hence the distinguishing name applied not by themselves, but others.

While this explanation is the true one, can it not be said that there is an American dentistry that upon its practical side has been superior to that of older civilizations? Without egotistic assumption, it may be stated that nearly all the improvements in dental and operative mechanics have had their origin in the United States. Allusion need only be made to a few of these: the dental engine, the mallets, electrical and mechanical, rubber and celluloid plates, so-called continuous gum, crown- and bridge-work, and the rubber dam. The list might be extended, but these typify the important advances made.

In Europe, including Great Britain, there has been a marked advance in theoretical knowledge, and we on this side are not slow to acknowledge our indebtedness for the work accomplished; but

the observer will find that those things that make progress in a practical sense have had, with few exceptions, their origin in America. So that there is an American dentistry, or rather a mental activity, here that is never satisfied with things as they are, and this, it is assumed, has a larger development in this country than in any other of our modern civilizations. Space will not permit the writer to enter into the reasons for this, but this activity exists as part of our inheritance.

The thought that follows this statement brings the writer to the consideration of the question, Was this accomplished by men who possessed the preliminary qualifications considered so necessary in Europe? The answer must be in the negative. The higher training may lead to a quicker perception of things, as in the case of Arthur, the scholar, who observed the cohesive effect of pure gold when in sheet form it was brought in contact. Its introduction resulted in a revolution in practice. The inventive mind coupled with mechanical tastes may produce positive results in a highly trained intellect, but these are exceptional, and must not be regarded as proving the special value of the higher training desired. In the world of dental mechanics the scholarly man makes but a poor exhibit, while the work of the ordinary mechanic has become the common property of the world.

The life-work of Dr. Bonwill, recently deceased, accentuates this very fully. Had he been forced to extend his preliminary training, it might have been of great advantage as a personal acquirement, but it certainly would have detracted from his ability as a mechanic, so markedly manifested to the advantage of the dental profession.

The writer would not be understood as advocating a low standard of qualification. No one entertains a higher estimate of an education, thorough in every respect, than he, but he appreciates the fact that dentistry is peculiar in that it is a mixed profession, combining mechanics and the collateral scientific branches so thoroughly that to excel in it a different course must be pursued in the training from that adopted by other professions.

The idea thrown out in the discussion, to which allusion has been made, that a degree from a technical school would be the best educational foundation, as the Institute of Technology, coincides with the writer's views. The manual training schools should be the feeders of dental colleges, and should President Eliot's ideas be carried out, there could then be no objection to the A.B. degree, for

the young man would enter dentistry properly equipped to meet all the difficulties of special training and the contingencies of practice.

DENTISTRY IN STATE INSTITUTIONS.

UPON another page Dr. Catching, of Atlanta, Ga., announces the appointment of a dental surgeon to the Georgia Insane Asylum. While it is believed that this is the first official appointment to a State institution of this kind, it is by no means the first recognition of the value of dentistry in other institutions. It is presumed that in all the large and many of the smaller charitable homes there are to be found regularly appointed dentists. It is so in Philadelphia in the House of Refuge, Girard College, Deaf and Dumb, Institution of the Blind, etc.

While this is true, and a striking evidence of the appreciation of dental surgery, and a marked advance over former years, there has been a singular want of appreciation by the legislative body of the State of the need of the inmates of insane asylums and prisons. No appointments of dentists have been regularly made to these institutions. There have been for brief periods dentists called in to the State Insane Asylum, but it has been through the intelligent appreciation of the superintendent.

If the State authorities failed to provide medical attendance for the inmates under their care, they would justly be regarded as negligent, and would be held accountable to an indignant public sentiment; but here are large bodies of people left entirely without aid, and every dentist can appreciate what that means in suffering and deterioration of health.

The writer has had some experience in insane institutions, and of the embarrassments of those in charge when unable to relieve their patients. That these would welcome the appointment of a skilled dentist needs no assertion here. With no means at hand to relieve suffering, resort must be had to the forceps in extreme cases, but there is much that the forceps will not relieve and where it should never be used, intelligent treatment being substituted.

The time has come for dentists to assert themselves and demand recognition for their own specialty, not only in the army and navy, but everywhere in all State institutions, and the several State societies should begin work at once with the legislators of the States,

and demand that this be done. Georgia has taken the initiative; now let other States follow this excellent example, and have dentists appointed to all institutions under the control of the government. Good policy and humanity demand this, and if the facts be carefully laid before our legislators, it is believed that the great value of these appointments would be speedily recognized. It only needs a concerted and vigorous effort to accomplish it.

Obituary.

DR. W. G. A. BONWILL.

A BRIEF announcement of the death of Dr. Bonwill was given in our last issue as it was being prepared for the press, and too late for an extended notice.

His death occurred on September 24, 1899, through uræmia, the result of acute prostatitis, after an illness of seven weeks.

Dr. Bonwill's early life was spent in Delaware. He commenced the practice of dentistry in Dover, in that State, in 1854, and remained there some years, subsequently removing to Philadelphia, where he enjoyed a large practice up to the period of his last sickness.

It was during this period that he carried on the work that gave him an international reputation, and it is that period and the work evolved that has invested his life with an interest to all practitioners of dentistry.

The universal thought is predominant in the human mind that death ends all antagonisms, and leaves only the most kindly feelings to influence the last word at the open grave. This is not only proper, but it evidences the best in man that he is willing to permit the record of a life, whether good or ill, to pass beyond the range of human criticism.

When a good man dies it is due him that his life work be calmly but truly given, that the lesson may be of value to others, for it is the good in man that lives and becomes an educational force. Every life that contributes something to the uplifting of humanity is part of the foundation upon which the true hope for

mankind is concentrated and which makes for the progress of the world.

Dr. W. G. A. Bonwill was one of the remarkable men of his day and generation. He was a man among men, isolated largely from his fellows by the peculiarities of inheritance, but ever maintaining an unselfish devotion to the profession of his choice, ever ready to give his original ideas to an unbelieving world, and ever ready to defend those ideas even though it separated him from those he respected. He truly was one who had "trodden the wine press alone," and illustrated more fully in his own experience, as but few others, the old biblical quotation, "A prophet is not without honor, save in his own country." Abroad he was welcomed and sought after as the one American worthy of honor, while at home he worked and lived his life almost alone in a professional sense.

It is unnecessary here to enter into an explanation of this singular antagonism. Suffice it to say it existed, and was mainly due to his own peculiarities and a lack of appreciation of the sterling worth of the man by those with whom he was surrounded. The very few who had the privilege of entering into his inner nature were able to throw aside the mental characteristics that measurably marred his life, and had revealed to them an underlying spirit of helpful devotion to the best interests of dentistry and an unselfish desire to aid humanity. He was ever ready, in season and out of season, to assist a struggling practitioner. In this respect he excelled all men in his profession in his own line of work. The superficial observer charged this to an overmastering desire for personal glory, but those who knew him intimately were aware of the fact that he was so thoroughly convinced that his methods were true and helpful that he was willing to sacrifice himself to bring others to the same standard. No other man travelled farther or spared himself less in demonstrating his ideas than Dr. Bonwill, and it has not been given to many men to prove to an unbelieving generation that, in the main, he was correct.

He was a born mechanic. By this is not meant that his mind was capable of perfecting in every detail his original ideas. It appeared to the writer that he lacked in this respect, and as a result, many of his appliances were crudely evolved from his active brain at their inception, and thus offered an opportunity for others to attempt improvements and to deprive him of the honor justly belonging to his work.

When Dr. Bonwill first located in Philadelphia he was confirmed

in the belief that the method of using cohesive foil was a mistake, and the writer was severely criticised by him for teaching this to the students in his charge. His thorough belief in non-cohesive, or, as it was then called, "soft foil," was so pronounced that he did not hesitate to denounce the practice of those who use the more modern form. When he became a convert to the use of cohesive gold, which naturally followed his invention of the electric mallet, he became equally the antagonist of all who continued the use of non-cohesive gold, and carried this feeling up to the last days of his life. He seemed incapable of recognizing that there is a middle ground for the liberal mind to rest. This tendency to extreme views embittered many against him and disturbed friendly relations with those whose friendship would have been helpful and mentally invigorating.

The invention of the electric mallet first brought Dr. Bonwill into prominence. Other attempts to apply power in the use of the mallet had preceded his effort, but not in this direction. The electric, when he finally succeeded in perfecting it, entirely superseded these, and for a time held undisputed sway with the best operators of the period. The evolution of this instrument illustrates the previous remark that nothing seemed to issue from his brain fully developed. The various stages of its growth, which were familiar to the writer and which have been preserved by the inventor, demonstrate this very conclusively. After, however, some two years of effort the crude original conception was reduced to a reasonably good working instrument. It revolutionized the ideas, previously prevailing, of the hammer-blow. It was discovered that the rapidity of the blow delivered by this instrument overcame mobility, and thus secured a compaction of the gold not obtainable by the heavy mallets previously used. This quality of the electric, in the opinion of the writer, has never been reached by any of the mechanical mallets, not even the Bonwill, the best of all that class of instruments.

The history of the introduction of this mallet has never been written, and perhaps it is just as well to let it sink into forgetfulness, but its introduction engendered a crop of bad feelings that were never exterminated or softened during Dr. Bonwill's life. This was partially due to his unwillingness to recognize the fact that any other mind could, in the least degree, improve upon his work, and, on the other hand, a very great wrong was done him by stamping his invention with another man's name. This was a

most discreditable proceeding, and for a time it almost obliterated that of the inventor from the instrument. There were other wrongs attempted, but these were not very successful in depriving him of the honor of this invention. This failure was mainly due to the fact that the dental profession indignantly took sides with the inventor, and made it impossible for any one to supplant him in the honor due him, but it took years to accomplish this. At the present time no one has the temerity to dispute the fact that Bonwill originated the instrument and made it a practical working force.

The antagonisms met with in its introduction led his active mind to evolve a mechanical power that would entirely obviate the necessity for the use of a battery. This he, in part, succeeded in accomplishing in the invention of what is known as Bonwill's mechanical mallet. While a number of others have endeavored to originate instruments based on a mechanical blow, Bonwill's invention remains the simplest in construction and the most practical. In his own opinion it superseded the electric, but this view is not held by those equally well qualified to judge of their respective merits; in fact, the blow the mechanical delivers cannot compare with that of the electric, at least not when applied with foot-power.

The evolution of the so-called dental engine changed the whole character of operative dentistry, and in this development Dr. Bonwill took a conspicuous part, and after many efforts he succeeded in giving dentistry a very practical and simple cord engine, which, with the hand-piece, reduced the labor of preparing cavities and finishing fillings. While this instrument has not entirely superseded other forms, it still is preferred by the majority. The studies of Dr. Bonwill in this direction led him to adapt this instrument to certain surgical operations, and the "surgical engine" was the result. This, as it has since been perfected, is, in the opinion of some, only second in importance to the discovery of anæsthesia. It requires, of course, skill in handling tools, but its value has been so frequently demonstrated that criticism has lost all its force. It is this, perhaps, more than anything else, that gave Dr. Bonwill the respect and honor of the first surgeons in this country and abroad. When its value is properly appreciated, and skill in its use attained, the old, crude, and essentially barbarous methods will have been cast aside and relegated to the museums as relics of a by-gone and ignorant age.

His method of "rapid breathing" as an analgesic never was adopted except by the few, although it was fully endorsed by very high authority, and has been proved in many cases by himself and others as having a positive value in minor surgical operations.

Dr. Bonwill was severely criticised for claiming almost everything introduced. While he deserved this, it must be said in extenuation that he very frequently made good this claim by actual proof. His active mind was ever on the alert for new methods, and he naturally attempted and abandoned many things that were eventually perfected by others.

Space will not permit the writer to follow this original thinker through all the ideas that he moulded into form, but the history of his work would be incomplete if no allusion were made to that on articulation. He began this by constructing an articulator based, as he believed, on the natural movements of the human jaw. Strange to say, for more than twenty years this admirable instrument was allowed to sink into oblivion and neglected by almost all workers upon artificial plates. Slowly, however, its value became recognized by the few, but even at the present time it has not entered into general use. Why this should be it is difficult to determine, for it is beyond question the only true scientific articulator ever invented.

Upon this instrument he based his theories antagonistic to evolution as understood by Darwin and his followers. With all the energy of his nature, he forced attention to his ideas, and at no time was he discouraged by the antagonisms met with. His efforts to prove his position were not very successful, but he was always ready to enter the arena of disputation, in defence of his propositions, with the best scientific minds in and out of his profession. While he regarded this as the most important work of his life, it is presumed it will die with him, for his theories found few who would seriously entertain them. His general principles of articulation will remain as a portion of that living monument which he builded in the minds of his professional brethren.

He had in his teeming brain many things which, he informed the writer, he proposed to develop, and had he lived a few years longer these would, doubtless, have been evolved and perfected.

His last clinic was given at the meeting of the Pennsylvania State Dental Society, held at Neversink Mountain in July last. It was one of his best, and he fully enjoyed it, stating afterwards that "the boys treated him kindly."

There was much in this last remark indicative of his character. No man living was more sensitive to opposition, or more ready to meet it with equal bitterness, and no one was more amenable to every expression of kindness. The writer has often seen the tears well up in his eyes at the mere mention of some kind remark made by a professional brother. It was this inner life that so few knew, but it was this that drew that very few closer to him in spite of his peculiarities.

As the writer looked at his placid face as he lay in his coffin, he could not help the feeling that at last this ever-active body was at rest, but if we believe in the immortality of the animating spirit, it is impossible to think of its resting anywhere in the great universe of mind.

W. G. A. Bonwill has closed his work on earth, the harvest for him has been gathered, but he has left broken sheaves for others to bring together for the nutrition of our professional life. He lived that his profession might be benefited by his work, and he truly died a martyr to his faith, for the continued strain under which he lived, mental and physical, undoubtedly shortened a life which had every promise of continued development.

At the open grave we can bury our prejudices and our antagonisms, and truly say a great man has been gathered all too early to the last resting place on earth, and as we lay up the treasures of his life, may they be continual incentives to follow him unselfishly to the end. He has built his own monument, and in the cycles of the future his name will be remembered when others who have labored with equal assiduity have passed into oblivion.

Domestic Correspondence.

DEATH FROM HEMORRHAGE CAUSED BY LANCING GUMS.

TO THE EDITOR:

SIR,—News has just reached me of the death of a very strong, robust child resulting from hemorrhage caused by lancing the gums to aid tooth eruption.

This accident will be the cause of untold suffering to little ones, wherever this case is reported. Fond parents will dread the lancet,

not thinking or knowing of the great benefit of this instrument when judiciously used, but fearing a like result. I fancy that it is an instrument too little used during the process of teething. In my own hands it has been of untold benefit, and never any harm. I must add another incident during teething, which occurred a few months since. A child by some means dislodged a loose temporary tooth, and died from the hemorrhage therefrom. He was a "bleeder," evidently. The question occurs to me, Would not the administration of a few grains of tannic acid have proved effectual in each case?

I am glad to announce that, through the untiring efforts of Dr. H. H. Johnson, of Macon, the office of Dental Surgeon to the Georgia Insane Asylum has been created. Dr. Edward Tignor, of Atlanta, has been elected by the trustees to fill this important position. He has entered upon this important work, and much good may be expected from his wise efforts in the amelioration of the suffering of the inmates of this noble institution.

It is a position that every institution of the kind should have filled. Dr. Johnson has made a close study of the reflex action of diseased and malposed teeth, and set to work years ago to accomplish that which has just been done. Too much credit cannot be given him for the accomplishment of his great purpose. Dr. Tignor's work will be watched with much interest; nothing but good can come of it.

B. H. CATCHING.

ATLANTA, GA.

KLEIN'S PLASTIC DENTINE.

TO THE DENTAL PROFESSION:

Dr. E. A. Bogue, of New York and Paris, has informed us that his name has been used in support of this preparation without his knowledge or authority.

We greatly regret that this error has been unwittingly circulated by us, and have withdrawn Dr. Bogue's name from the pamphlet.

CLAUDIUS ASH & SONS (Limited).

Notes and Comments.¹

DEATH FROM CUTTING A WISDOM-TOOTH.—M. Heydenreich reported the case of a man, thirty-three years of age, brought to his clinic and said to be suffering from mumps. There was high and persistent fever, rising to 104° F., with agitation, delirium, stiffness of the jaws, and swelling over the right parotid extending into the neck. When M. Heydenreich saw the patient, on the third day of the grave symptoms, the condition seemed to have improved. The temperature was from 102.5° to 100.4°, consciousness had returned, and the swelling was strictly limited to the angle of the right jaw. The patient could open his mouth, and a drop of pus escaped by the jaw. All the teeth were there. It was certainly a case of suppurative osteitis of the inferior maxilla, due to the eruption of a wisdom-tooth. There was not at this time any indication calling for operative measures. The next day, however, the patient became semi-prostrate, and in the evening the temperature rose to 104.9° F.; on the fifth day he was taken in a moribund condition to the hospital. There was complete left hemiplegia. A free incision was made by means of the thermal cautery as far as the zygoma, but no pus was found. He died next day at mid-day, the temperature being 98.9° F. The autopsy disclosed pus on the right side between the cranial vault and the meninges up to the level of the convexity, towards the median region, and suppurative osteitis of the cranium. On opening the meninges a bed of very thick greenish-yellow pus (showing meningoencephalitis) was laid bare. There was no lesion in the interior of the brain.—*New York Medical Journal*.

UNUSUAL EFFECT OF COCAINE.—Although, possibly, of no scientific importance, the following case is not without interest. It was presented to the Société de Chirurgie, and is reported in the *Medical Press*: M. Raymond presented a young girl, aged eighteen, who was found some time ago in a profound sleep in a railway wagon. The repeated efforts of the officials to awaken her proving unsuc-

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

cessful, she was carried to the Salpêtrière Hospital. Here, it was only at the end of the third day that she was awakened artificially. The sleep was calm, the respiration and the pulse normal; the eyelids were closed, the face pale, and the muscular relaxation complete; in a word, the sleep was absolutely natural. When she came to herself she gave the following interesting account of her antecedents. At the beginning of the present year she went to a dentist to have a tooth pulled, and as she feared greatly the pain of the operation, the dentist employed cocaine. But after the tooth was drawn she was seized with convulsions, and finally fell into a deep sleep, and for three hours the dentist tried in vain to rouse her. Carried to the hospital, she awoke the following morning. For three months all was going on well, when one day she went to sleep in the train, and, carried again to the Lariboisière Hospital, she did not awaken until the seventh day. A few days after she was seized with sleep in the street, and was for the third time received at the hospital, where she remained asleep ten days. This time she remained under treatment three months. M. Raymond, after passing in review the possible causes of this phenomenon, said that he had fixed his opinion on hysteria, and gave the history of several other cases from a similar cause.—*Dental Record*.

Current News.

PENNSYLVANIA BOARD OF DENTAL EXAMINERS.

THE Pennsylvania Board of Dental Examiners will conduct examinations simultaneously in Philadelphia and Pittsburg, December 18, 19, and 20, 1899.

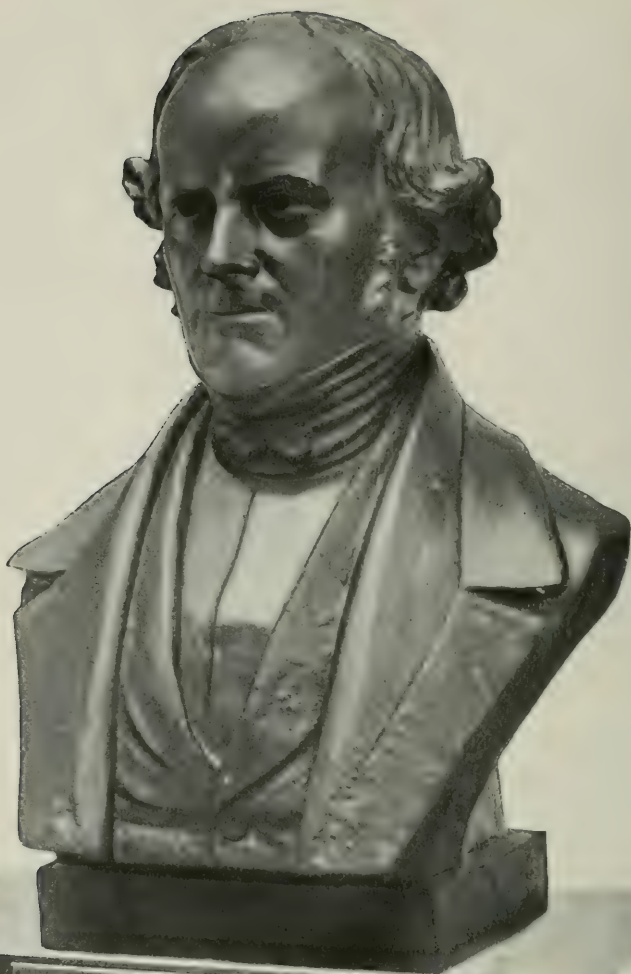
Application for examination must be made to Hon. James W. Latta, Secretary of the Dental Council, Harrisburg, Pa.

G. W. KLUMP,
Secretary.

WILLIAMSPORT, PA.

CORRECTION.

IN the September number, in a notice of South Dakota State Dental Society, the name of the essayist should read Dr. H. J. Goslee, of Chicago, not Gasler, as printed.



HORACE WELLS
THE DISCOVERER OF ANAESTHESIA.
PRESENTED BY THE DENTISTS OF AMERICA.

THE International Dental Journal.

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Original Communications.¹

DENTAL SURGEONS IN THE ARMY AND NAVY.²

BY GEORGE T. BAKER, D.D.S., BOSTON, MASS.

It is not the purpose of this paper to discuss the best method of organizing a dental corps in the army and navy, but simply to call attention to the importance of the subject, and, if possible, enlist the hearty co-operation of the members of this Society. During the past year much thought has been given to the matter, and the unusual interest taken by every one in military and naval affairs has perhaps given impetus to the movement.

Without doubt the time is coming when the men in both army and navy will enjoy the services of skilful dentists ; it is also true that there is almost no opposition to the end in view, the only delay being that caused by hesitation as to just what should be done and just how best to do it.

In order that we may appreciate the need of such service, let us for a moment glance at the organization of our army and navy, and especially the medical departments in each, for to these departments, if any, must a dental corps look for encouragement and support.

¹ The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in the country.

² Read before the Massachusetts Dental Society, June, 1899.

Our army in time of peace is divided into eight departments,—viz., Department of the East, of Missouri, of Dakota, of the Platte, of Texas, of Colorado, of California, and of Columbia. These departments are subdivided into posts or stations, about a hundred in all, garrisoned by a varying number of men. Here are stationed the men under their officers, the latter in most cases accompanied by their families and civilian *attachés* of the army. The civilian *attachés* comprise the families of the officers and enlisted men, servants, employees of the various departments and their families, and all persons not in the *personnel* of the army who are allowed to reside at military stations or to accompany military commands. The number of the non-combatants during the year 1897 was as follows (*vide* "Report of Surgeon-General of the Army"): Adult males, 2178; adult females, 5710; children, 5968; total, 13,856. This number added to the total number of the army, 25,417, makes a grand total of 39,273, including over ten thousand women and children. When our army is increased to sixty-five thousand, the grand total must be in the vicinity of one hundred thousand persons living in army posts and stations, often many miles distant from civilized communities.

In the navy the conditions are much the same, only the officers, except on home stations, are not accompanied by their families. Here the various *stations* correspond to the *departments* of the army, as the North Atlantic Station, the Pacific, the South Atlantic, the European, the Asiatic, and one other, the Northwestern Lakes. Then comes what correspond to the posts of the army. These include the navy-yards, marine barracks, etc., and the different ships, each attached to this, that, or the other station.

The men in the army are enlisted for five years, and in the navy for four, and inducements for re-enlistment are held out, such as increased pay, rank, etc., so that many of the men, like the officers, serve a long period of years, or for life.

While the line officers have always been educated and trained in the Military Academy at West Point, or the Naval Academy at Annapolis, the medical officers have always been appointed from civil life, after a rigid and exacting examination, both physically and professionally. The applicants are plenty, so that it may be said of them that "while many are called, but few are chosen."

In both departments are men of scholarly attainments and world-wide reputation. To show with what care the appointments for the army are made, it may be interesting to know that during

the year ending June 30, 1898, of one hundred and eighty-one applicants authorized to appear before the Examining Board, only one hundred and thirty-one appeared, and but nineteen passed; and during the same period for the Medical Department of the navy, out of two hundred and forty-eight applicants, only sixty-five appeared, and but seventeen passed. This makes the successful candidates for the army about fifteen per cent., and for the navy about twenty-six per cent. of those examined. After receiving his commission the army surgeon enters the Army Medical School at Washington (established in 1893), and for six months a special course is taken in the following studies: Duties of Medical Officers, Military Surgery, Military Medicine, Military Hygiene, Sanitary Chemistry, Clinical and Sanitary Microscopy, Hospital Corps Drill and First Aid. In addition, instruction in riding is given by a cavalry officer.

Much might be said of the hospitals provided with every facility for the best possible treatment of the sick and injured. Recently ambulance ships have been added to the navy, the "Solace" being the first of her class.

In 1887 the hospital corps of the army was organized. This corps consisted, January 31, 1898, of over seven hundred men, who perform service as ward-masters, cooks, nurses, attendants in hospitals, as stretcher-bearers, litter-bearers, and ambulance attendants in the field, and such other duties as may by proper authority be required of them.

There is also a hospital corps of the navy recently organized by Act of Congress and approved by the President June 17, 1898, and nearly all the hospitals are now supplied with trained nurses, and in many are apprentices undergoing instruction.

While all these precautions for the health and safety of the men seem excellent, there appears to be something lacking. Apparently it is taken for granted that the men have perfect teeth and are immune to all dental troubles, but, as is generally known, the rank and file of our army and the seamen of our navy are from a class who, while strong and rugged, often suffer acutely from defective teeth. To many of them modern dentistry, with its relief from pain and suffering, is an unknown quantity, and the only remedy known is extraction. This primitive method of relief supplied by the medical departments in both army and navy is the same to-day as it was one hundred years ago, and must result in the long run in great loss of time and the ruthless extraction of

comparatively sound teeth. Such wholesale extraction is malpractice, and while it may have been necessary in early times it is to-day without excuse.

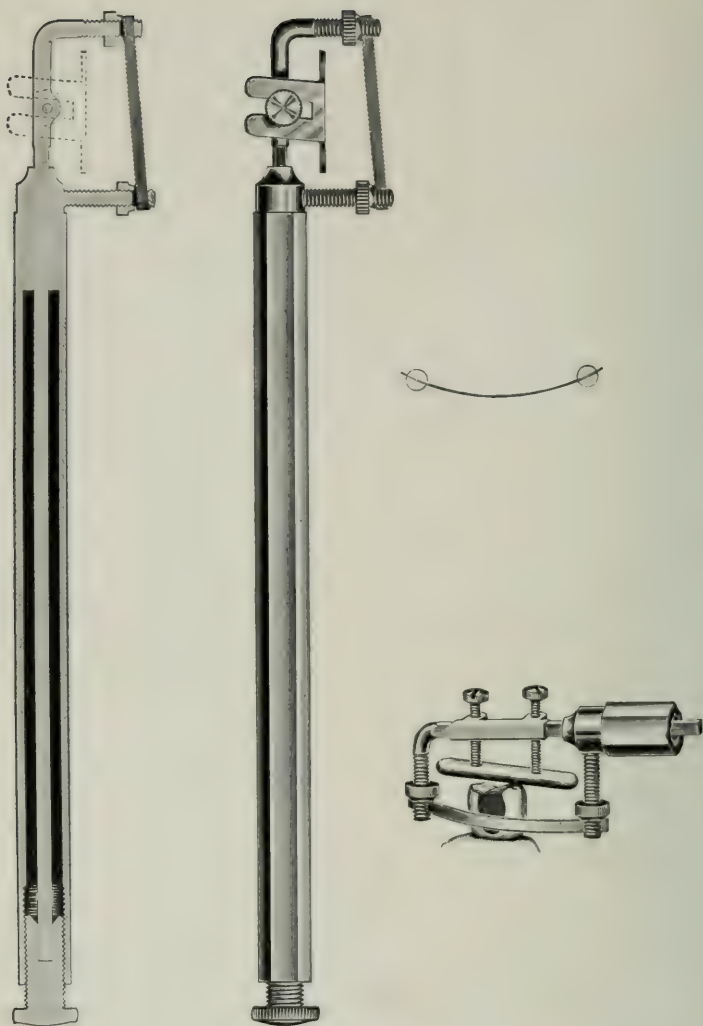
It is recorded that Erasistratus once deposited in the Temple of Apollo at Delphos a leaden forceps, to prove that only those teeth ought to be removed which are loose or relaxed and for which a leaden forceps will suffice. Possibly if some modern Erasistratus would deposit a similar forceps in the Army Medical Museum at Washington the lesson would not go unheeded.

The theory that a tooth should be extracted because it aches has given way to the more advanced idea that it can and should be saved; or, better still, on the principle that "an ounce of prevention is worth a pound of cure," the tooth should not be allowed to ache, but by frequent examinations dental caries when present should be early discovered, the cavity excavated and filled, thus avoiding the more difficult process of treatment in order to save the tooth. Such work can be done only by men educated and trained in the science and art of dentistry, and such education and training requires much time and patient study. Not only the mind must comprehend what is to be done, but the hand and fingers must think as well.

The organization of a dental corps as an auxiliary to the Medical Departments in both army and navy would tend to increase the efficiency and promote the general health of the men, and in the case of the army not only the men, but the officers and their families, would derive great comfort and benefit from such an organization. The need seems to be almost imperative, for the uninterrupted tour of duties makes it well-nigh impossible for any dental treatment unless supplied close at hand by the Medical Department.

The need of such a dental corps has been recognized for a long time. At the Columbian Dental Congress a committee was appointed to report on the matter. There were representatives from the United States, from the principal European countries, and from four of the South American republics, and though the report was not especially encouraging, it was recommended that the matter be brought to the attention of the Surgeon-General of the army every year.

As is generally known, the matter was before the last Congress, and though the bill introduced by Mr. Otey, of Virginia, was not favorably received, there is reason to believe that the Hull Bill



THE AWL SAW AND FILE CARRIER.

DESIGNED BY WILLIAM ROLLINS.

will meet with better success. In the mean time let all strive to urge upon those in a position to help the movement the importance of the matter from a humanitarian point of view. Dental surgeons should be represented in our army and navy and in our State militias, as well as upon the staffs of our various city and State hospitals. If our various State societies will heartily support this movement, and encourage the committee appointed by the National Dental Association at the recent meeting at Omaha, who now have the matter in hand, it will only be a question of time when the whole matter will be brought to a successful issue.

DENTAL NOTES.

BY WILLIAM ROLLINS, BOSTON, MASS.

NOTE IV. A FILE- AND SAW-HOLDER.

I HAVE always believed in contours, and have tried to make the finishing of such fillings as rapidly as possible. One of the instruments designed for this is here shown. In an earlier form it was figured in this journal some years ago. The improvements consist in more rapid means of adjusting the files and saws. It differs from other frames in principle. These hold the saw by tension, therefore with them it is not practical to have the instruments in a curved form. This holds them firmly at each end. This entire independence of the ends permits the saws or files to take a curve as shown in the plate, where this is demonstrated in section and perspective. The gum-guard prevents the file or saw from plunging into the gum; this is a comfort in finishing the neck of the filling. The blades are held by a hardened steel nut at each end. These nuts have knife edges which, making little cuts in the edges, hold securely. Flexible files fitted to this holder are very convenient means of finishing fillings.

THREE YEARS NONE TOO LONG FOR A DENTAL COURSE.

BY GEORGE BROOKS, D.D.S., GREENFIELD, IOWA.

IN the August number of the *INTERNATIONAL DENTAL JOURNAL* appeared a paper entitled "Are we punishing the Right Man?" in which the writer holds that twenty-one months is longer than is needed for some men to fit themselves for the practice of dentistry, and that they are simply held back by the slow ones who do need that time. The method suggested by the writer would, perhaps, be better than the present way, but it would incur many complications, and I think it would not obtain the best ends, nor raise the profession to nearly so high a plane as the plan suggested by Waldo E. Royce, D.D.S., of Tunbridge Wells, England, in his article, "Some Suggestions in regard to Dental Examinations in the United States," which appeared in the June number of the *JOURNAL*. His plan, you will remember, was to create a national board and a national diploma, which it would require the best of training to obtain, and which would be recognized as genuine in any nation on the globe and the best that could be obtained.

In the Freshman dental class of the State University of Iowa, in the fall of 1895, there were one hundred and twenty-seven members, of which, in 1898, only sixty-two graduated, showing a decrease of sixty-five, over one-half. Of the sixty-five who failed to graduate, perhaps one-half sought other schools because of the reports of large clinics and the great amount of practical work to be done, of which they had but little at the State University of Iowa in the first year. The other half of the sixty-five left because they failed in two or more studies, and sought easier schools or decided that they had chosen the wrong profession. Several of the sixty-two who stayed were back in two, and a few in three, studies until the last year. The fact was, that every man in the class had an opportunity to study all he wished, and I think there was not a man in the class who did not feel, as he graduated, that he needed more of both theory and practice.

What I wish to show is, that the best men had all the work that they wanted to do, and many of the one hundred and twenty-seven had much more than they could do. The very best did not pass perfect examinations, and the poorest barely got through. I think it would be a rare exception for a student to do this work in nine

months (who had not had previous work in this line), as the doctor tells us is accomplished by the University of Virginia. There is not a day goes by but the ability of a dentist is questioned, and I suppose there is seldom a month goes by but he makes some mistakes in his work that will admit of question. We all make failures, and our course at school is none too long to fit us for our work.

There are many first-class men who have to compete with the man who advertises, and it is a question with him how he is to gain a practice and yet not step over the lines of dental ethics. The national diploma would help him out of his difficulties, because the letter "N" added to his degree (when once understood by the people) would be worth more than all the advertising one could do. It is a part of Dr. Royce's plan that any man forfeits his degree and diploma if he advertises or indulges in other unprofessional practices.

If any State board would make the national diploma necessary to the practice of dentistry in that State, the unworthy and unprofessional dentist would have to seek a new field. Much would depend on the National board. This examination should be as strict as, if not stricter than, that given by any dental college or State board in the Union, and I think one of the requirements should be that a candidate for a national diploma shall have had at least one year's practice, after graduating, before he could secure the degree. I earnestly hope to see the national degree a reality, soon, and that it may not become valueless on account of the ease with which it may be obtained, but that it will be worthy of the effort of the best men and be enhanced in value by the work of the men who hold them.

PAINS FROM MALOCCLUSION.

BY JOHN S. ENGS, D.D.S., OAKLAND, CAL.

IN the fall of 1897 Mr. F., aged about forty years, had occasion to visit me for treatment. Among other things, I filled a distal cavity in the right superior twelfth-year molar with Flagg's contour alloy.

Three months later the patient returned complaining of slight pain in that tooth. As the cavity had been quite deep, I suspected pulpitis, and made an application to the gum over the tooth, using

tincture of iodine, tincture of aconite, and chloroform P. E. The patient was seen the next day; he said all was well.

Six weeks later he called again, with recurrence of the trouble. The same treatment was repeated, but the next day the pain returned. I repeatedly touched the gums for several days, but the relief from pain was only temporary. The patient suffered more than before, especially while chewing food and when any pressure was brought to bear on this tooth. With the exception of decided evidence of vitality in the pulp, I had every reason to think it a pronounced case of pericementitis threatening an abscess. I was not quite satisfied with the diagnosis, and, suspecting trouble from the position of the tooth, took impressions of both jaws, that I might look closer into the articulation.

The accompanying illustration shows fairly well the relative positions of the teeth. The superior twelfth-year molar had been



thrown so far forward from its normal position that it almost touched the second bicuspid (both the superior and inferior sixth-year molars had long since been extracted).

Every closure of the lower jaw brought the coronal surface of the inferior wisdom-tooth to bear distally upon the upper second molars, causing a severe lateral strain.

I ground away the corono-distal surface of the upper second molar, and then forced a wedge of wood between it and the second bicuspid. The patient could then chew without any discomfort. It was evident that the trouble was due to malocclusion.

It seemed proper that the upper second molar should be moved back as nearly as possible to its normal position. This was effected with the aid of cottonwood wedges inserted between it and the second bicuspid. The process was begun May 2, and completed

June 8, 1898. A gold band with a nugget of gold soldered to it, large enough to fill the space between the two teeth, was cemented to the molar. More than a year has elapsed since then and there has been no recurrence of the trouble.

The lines on the plaster cast, showing approximately the position of the molar roots, are drawn on the cast in pencil, and are not reproductions of the true roots.

Abstracts and Translations.

PROPHYLACTIC INOCULATIONS.

BY EDWARD F. WILLOUGHBY, M.D., LONDON, ENGLAND.

THE progress of bacteriology during the last few years has been so rapid that it is almost impossible for any but those who are actually engaged in the work of the laboratory to keep abreast of the advance of the science. Working hypotheses either become established facts or are set aside by the very discoveries they have led up to, almost before their true character has been generally apprehended. One result of this advance all along the line is that the public as represented by the lay press, and a large part, probably the majority, of the medical profession, when the latest discoveries find a practical application in the prevention or treatment of disease, are apt to interpret them in the light of the state of the science and the knowledge of several years past, and to ascribe to particular procedures the characters and effects of others more familiar to them, but with which they have little or nothing in common. They are fully aware of the permanent or, at any rate, long duration of the protection against small-pox conferred by vaccination, and probably conclude that inoculations against cholera or diphtheria must be equally lasting; or, finding that the immunity is only temporary and transient, are inclined to doubt its reality altogether. They do not clearly distinguish between immunization by the induction of the actual disease in an attenuated or modified form, and that imparted by the injection of products of the bacilli, which, so far from producing the phenomena of the disease in a milder phase, have a directly opposite and antagonistic action; and fewer still

have any conception of the difference between antibiotic and anti-toxic agents, the one class causing the death of the bacilli, and the other neutralizing or destroying the poison independently of any action they may or may not exert on the bacilli themselves. There is, in fact, nothing improbable in the statement that the bacilli of diphtheria have been cultivated in the (solution of) antitoxin, though to such men it would appear to prove the whole doctrine of serotherapy a delusion; and the fact, well known to experts, that quantities of (washed) cultures of tetanus bacilli may be introduced into a (healthy) wound, but that the addition of a little lactic acid or of a culture of *bacillus prodigiosus* will induce tetanic phenomena, would seem to prove that these were due to the accessories rather than to the reputed specific microbe; and, lastly, the indisputable fact that many persons in seeming health carry the bacillus of diphtheria in their mouths for weeks together without any infection or ill-effects to themselves is in itself calculated to provoke incredulity as to the existence of an essential and strictly causal relation, and to suggest a merely casual connection or association between the bacillus and the disease.

At the present time this confusion of conception is prevalent as regards the preventive and curative treatment of the plague in India. Because the serum employed by Yersin and Haffkine has yielded results very far from satisfactory, if not really negative, little credit is given to that employed by Drs. Galeotti and Polverini, though it is, in fact, a totally different preparation, being an antitoxin, while the others are, or were, since their use has been discontinued, "vaccines" or attenuations of the actual virus, in accordance with the practice of Pasteur, whereas the Italian serum is, or contains, a substance strictly analogous to the antitoxins of diphtheria and tetanus which we owe to Behring, Kitasato, and Cantani.

The products of bacteria by which the phenomena of infection and of immunity are induced belong to two distinct classes, ptomaines and toxins; the former being alkaloids, of complex but definite composition like those obtained from the vegetable world, capable of being isolated in a state of purity, and secondly of albumoses, akin to those produced in the process of peptic and tryptic digestion, of the chemical constitution of which little is known, from the impossibility of isolating them from the inert albuminoids in and with which they are held in solution, and from their tendency to the total or partial loss of their properties in the act of drying. An interest-

ing fact may be here mentioned in passing,—viz., that the venom of serpents, which is an albumen or an albumose, though a secretion of the parotid gland and not a product of bacteria, is susceptible, on the one hand, of being digested by the action of ptyalin, papain, pancreatin, and pepsin, so as to be rendered inert when swallowed, and on the other, is capable of acting as a peptonizing agent on other albuminoids, etc.

Ptomaines and toxins are alike poisonous, and alike vary greatly in their virulence; but ptomaines are exclusively products of the bacteria of putrefaction, under circumstances involving the exclusion or a very scanty supply of oxygen. The virulence of some almost passes belief, while others are scarcely poisonous in the ordinary meaning of the word. The toxins are for the most part less virulent than the ptomaines, that of tetanus being the most, and those of diphtheria, and probably the plague, coming next in their virulence. The power possessed by many bacteria of dissolving and digesting animal matter plays probably an important part in their action on the living body. Of one hundred and forty kinds observed by Claudio Fermi, forty liquefied gelatin and five dissolved fibrin, while a large number, though cultivated in serum, gelatin, and broths, in the entire absence of starch or sugar, yielded diastatic ferments; those of anthrax, cholera, and Finkler and Prior's being among the number. But while neither class of ferments is formed by bacteria grown in nutrient *salts* only, the presence of starch is *most favorable* to the formation of diastatic ferments, and of gelatin to that of the peptonizing, the conditions of temperature, reaction, etc., being within the limits requisite for each particular case.

Some of the poisons produced by bacteria act simply as do the vegetable alkaloids, especially muscarine, as the gland poison of snakes, or induce indefinite symptoms of gastro-intestinal irritation. Others are pyogenic, exciting local inflammation, with the formation of pus. Among these the general tendency of streptococcal inflammation is to a wide diffusion of the suppuration, while that of the staphylococcal is to circumscribed abscesses, the process being limited by the fibrinous exudation peculiar to their action. In like manner, the density of the so-called false membrane in diphtheria will "vary from the consistence of cream to that of wash-leather," just as streptococci or staphylococci predominate, Löffler's bacillus, which alone induces the remote effects, the degeneration of the medullary axes of nerve-fibres, and of the muscular tissue of the heart, taking little or no part in the exudation.

A distinction has been made between toxic and septic poisons, the former being those produced locally by the bacteria, and absorbed and diffused thence by the lymphatics; the latter being formed everywhere by the bacteria, which, multiplying in the blood, pervade the entire circulation and penetrate the tissues, instead of remaining confined to certain glands or organs, as the spleen. The distinction, however, is somewhat artificial, some bacteria producing one or other poison under different conditions, or even apparently both under the same.

Immunity is the power possessed or acquired by the organism of producing or causing to be produced substances having (1) the property of causing the death or of inhibiting the growth of the special pathogenic bacteria, or (2) of destroying or of neutralizing the action of the toxins; and immunity of either kind may be (1) natural or congenital to the race or the individual, or (2) may be acquired by the animal having passed through an attack of the disease or having been subjected to certain processes of inoculation with prophylactic preparations; and the immunity of either kind and whensoever derived may be but transient and temporary or so far permanent as to be practically of lifelong duration.

Natural immunity is possessed by certain animals towards certain diseases, sometimes in virtue of the high or low temperature of their blood,¹ in others it is as inexplicable as their tolerance of morphine, atropine, etc., the resistance being manifested in some towards the growth of the bacilli, the tolerance in others in respect of the toxins.

Acquired immunity, temporary or permanent, follows an attack of certain diseases, small-pox, scarlatina, measles, typhus, and yellow fever conferring a lifelong exemption, and diphtheria one of little more than a month's duration. But it may be imparted artificially by inducing a modified form of the disease, as in vaccination, the vaccine virus being not that of a disease peculiar to the cow, but simply variolous virus so altered by cultivation in the organism of a bovine or equine animal to which it is foreign as to have lost most of its virulence, and becomes communicable by actual inoculation only, enthetic instead of contagious; or by the attenuation of the virus by cultivation under unfavorable conditions, as in

¹ The immunity of birds to anthrax can be overcome by lowering their temperature, and in fish the bacillus of tubercle induces a rapidly fatal disease, but loses its virulence towards warm-blooded animals.

the living bodies of other animals, or in culture fluids, or at temperatures partially inhibiting the normal development and vital functions of the bacteria. Such are the Pasteurian inoculations against anthrax, rabies, rouget, etc. But from the impossibility of accurately standardizing the cultures, and the differing susceptibilities of individual animals, there is always the risk of either failing to obtain the requisite degree of resistance, or of giving a dose that shall prove fatal; so that, however useful with brutes, whose lives have only a pecuniary value, the risks attending these inoculations preclude their employment in the case of man. Immunity may also be conferred by injections of the toxines, but it is not so lasting as that following injections of living bacteria, and requires a certain time for its acquisition. It is easier to render an animal immune to fatal doses of living bacteria than to those of their toxines, and the former immunity does not necessarily involve the latter, though the latter does the former.

There is one more way in which immunity may be imparted,—viz., the injection of the serum of animals highly immunized by other means. Of this the antitoxin treatment of diphtheria is the type, that of tetanus and the Italian method of treating the plague being the same in principle, though they have not as yet attained equal certainty and accuracy. This procedure, consisting in the injection not of the toxine, but of the antitoxin, not of the disease in even the most attenuated form, but of its very opposite, possesses advantages over every other, and being conceivably available in respect of every specific disease that of itself tends to a spontaneous termination within a definite period, and of all those that confer immunity of longer or shorter duration, holds out prospects as to the prevention of infection and the arrest or cure of disease, the importance of which it is scarcely possible as yet to estimate.

The resistance of an animal to infection is a complex effort involving phagocytosis, or the action of the leucocytes on the bacteria, towards which they are attracted by the phenomenon of chemiotaxis, and which they take into their substance and devour as an amoeba does the particles on which it feeds; a process which takes place in every exposure to infection, the struggle ending in favor of the leucocytes, or of the bacteria. It is thus that a man, who after having long resisted exposure to infection, as in a fever hospital, at length succumbs, when by fatigue, hunger, or any depressing circumstance the vitality and energy of his protoplasm has been lowered. The serum in its normal state is possessed of a certain

bactericidal property, in virtue, probably, of some substances formed by the leucocytes, called alexins, though their existence is at present only hypothetical.

But the paramount means by which the disease is brought to a termination is the production of an antitoxin, the property of which is to act as an antidote neutralizing the toxine secreted by the bacilli, which are meanwhile destroyed by phagocytosis, or gradually succumb to the bactericidal power of the serum. The protoplasm of an animal that has gone through a natural attack of a disease contains such antitoxin, but in quantities too small for practical purposes, for which such a high degree of immunity as can be obtained only by long-continued artificial immunization is necessary. The horse, though not insusceptible to the poison of diphtheria, possesses the power of producing the antitoxin in so extraordinary a degree that it is almost impossible to induce the fully developed disease in him, except by using enormous quantities of the toxine. The procedure originated by Behring consists in the injection of a certain quantity of a highly virulent culture of the diphtheria bacillus that has been carried on for a month at the temperature of the blood. This gives rise to a febrile disturbance of short duration, and so soon as it has subsided the injection is repeated, with little, if any, visible result. Gradually increasing doses are injected at short intervals till, at the end of three months, doses several hundred times as great as those first used can be injected with absolutely no effect on the health or well-being of the animal, whose blood is then so charged with antitoxin that very small quantities of its serum are required to confer immunity on or to arrest the progress of the disease in any other animal susceptible to it. Henceforth occasional injections suffice to maintain the condition of the horse's blood, and a litre or more may be drawn off every week. The serum, separated by the coagulation of the fibrin and red blood-corpuscles, carefully filtered and bottled with antiseptic precautions, constitutes the antitoxine so called, or, more correctly, is a solution of the antitoxin, the isolation of which in the dried state has not yet been very successful. The "antitoxin" is standardized by determining the quantity capable of exactly neutralizing the minimum lethal dose of toxine required by a guinea-pig of average size.

If administered in *sufficient quantity* to a patient within the first twenty-four hours from the commencement of the illness, the mortality may be reduced to one per cent., and if within three days to five per cent. At later stages its effect becomes less and less

marked: indeed, after the seventh day it has little influence, for, though it may avert further destruction of the nerve-substance and the fibres of the cardiac muscles, it is obvious that it cannot undo the degenerative processes that have already taken place.

It may also be used for prophylaxis, one good injection rendering the individual insusceptible of infection for a period of, but not exceeding, one month. This use of antitoxin has not been taken advantage of as extensively as it should be. On the appearance of a case of diphtheria in a family or school, it should be employed not only on the actual patient in whom the disease may perhaps have already proceeded too far for much effect, but on every other child in the establishment, and adults in attendance on the patient. They will thus be protected for a period long enough to cover the whole course of the original case, and the disinfection of the room and all possible vehicles of contagion.

Much has been written of late about antistreptococcal serums, but their efficacy is far from proven, and there is no satisfactory evidence that they are in any way comparable, the virus of septicæmia, etc., belonging to the class of septic rather than of toxic substances.

It is generally held that the antitoxins are secreted by the protoplasm of the cells, and not by the bacteria: but since it is not easy to believe that these cells have the power of producing a separate antitoxin for every possible toxine, it seems a more reasonable hypothesis to ascribe to them the property of acting on the toxine itself in such a manner as to obtain from it or to convert it into an antitoxin; and experiments *in vitro* on certain toxines appear to give support to this view of the mutual relations of the cells, the toxines, and the antitoxins.—*The Therapist*.

Reports of Society Meetings.

NATIONAL DENTAL ASSOCIATION.

Second Day.—Morning Session.

(Continued from page 727.)

THE hour for the special order of business having arrived, Dr. Truman W. Brophy proceeded to exhibit some of his patients who had been operated upon at a very early age for cleft palate and hairlip.

One, a girl, now ten years old, had been operated upon at the age of ten days, having had a double hairlip with a wide cleft of both hard and soft palate. The fissures of the lip extended into the nostrils, the intermaxillary bones and the central portion of the lip being rudimentary.

Another patient, a babe of three months old, had been operated upon at the age of three weeks for single hairlip and cleft palate, a brother of the first patient, four of six children born of the parents being afflicted.

Of the six children, the oldest was entirely free from deformity; the second was the girl first described; the third had a harelip; the fourth a double hairlip and cleft palate; the fifth child was normal; the sixth, the babe presented as described. The paternal grandfather was similarly affected, confirming the opinion that nearly all such cases are of hereditary origin.

In connection with the presentation of these patients Dr. Brophy read a paper entitled "The Radical Cure of Congenital Cleft Palate," of which an abstract follows:

While it is true that the methods pursued by Dr. Brophy are not generally practised, and have been severely criticised by those who do not fully comprehend them, it is also true that many of the most distinguished surgeons who formerly questioned these methods are now their most enthusiastic advocates. Dr. Brophy said that his first cases were undertaken with a great deal of hesitation, as it was a transgression of all the long-accepted rules of surgical procedure. But the question of early operation has passed the experimental stage. The results in hundreds of operations per-

formed at from ten days to three months of age have fully justified the practice. The reasons for operating as early as practicable after birth are as follows :

First. The surgical shock is less, as children react better ; all mental apprehension is eliminated, alarm and dread being among the most powerful factors in producing shock ; the nervous system is not well developed in the infant and they are not capable of receiving the impressions that they would later in life.

Second. Before the bones are fully calcified they may be bent or moved without full fracture, and hence the injury is really less than after more complete calcification.

Third. If the muscles are very early brought into action, they develop instead of atrophy, and hence a good velum is secured, with plenty of tissue. Later in life, after the parts have shrunk through non-use, they can rarely be made to subserve the same purpose as when developed through natural employment.

It was predicted by eminent surgeons that when, as the result of Dr. Brophy's operation, the upper jaw is reduced in breadth (in the first case shown to about three-quarters of an inch, the lower jaw having twice that measurement), it would always remain contracted, and the superior teeth erupt, if at all, considerably within the inferior arch.

But even had this been the case, it would have been within the province of orthodontial methods to correct it ; but it has invariably been the case that the arch has spread and the teeth at eruption have assumed nearly or quite their usual relations. All the tissues, bony as well as soft, develop naturally, according to accepted types.

Another great advantage is that the operation is performed before faulty habits of enunciation have been acquired, and normal speech is assured. An essential point is that the operation upon the palate should be made before operating upon the lip, thus allowing free access, as all the space that can be secured is required. The lip operation can be performed at any time. For the operation the edges of the fissure should be thoroughly removed ; merely scraping the mucous membrane is not sufficient. Trim the opposing edges of the bones as well, to secure sufficient exudate, so essential to a perfect union. The soft bones of the hard palate and alveolar process of young patients are easily cut through with the knife.

It may be necessary, in order to close the fissure, to divide the

mucous membrane and bone through the malar process, dividing a maximum amount of bone and a minimum amount of membrane, the bone being then readily moved towards the median line and the cleft closed by approximation of the two sides. After the sutures are inserted (a braided silk suture followed by silver wire No. 19, the ends protruding through eyelets in lead plates fitting the convexity of the buccal surface, and twisted together), if the parts are kept antiseptically clean, they will unite kindly and the palate be restored so that its full function may be performed. The germs of some of the teeth may possibly be destroyed, or some of them be imperfectly developed, but operative dentistry is competent to remedy this. The alveolar process developing with the teeth is a pronounced factor in the formation of the jaw, guiding the teeth into proper position.

DISCUSSION.

In the discussion of this paper

Dr. W. C. Barrett said that if dentistry had never given anything to the world but this single operation for the radical cure of cleft palate, dentistry would be immortal. It is an operation that stands on its merits and claims the admiration of the world. There once stood a Man of whom it was said that He anointed the eyes of the blind and they saw; that He touched the lips of the dumb and they spoke. The days of miracles are not past. Through the Brophy operation those who were destined to dumb solitude are given back to the world with the oral functions restored. This operation is the very climax of all operations in the cases to which it is adapted. Of over five hundred cases, every one, so far as known, has been a success; only one child has died subsequent to the operation, and that not because of it. I knew of the first operation when it was made. I then said the tissues will unite, but there will be a bad condition of things afterwards. If a vault of one and one-half inches breadth is reduced to three-quarters of an inch, what will be the position of the teeth? They will be away inside of the inferior arch. I was astonished when *Dr. Brophy* pointed out to me that the deciduous teeth were erupting normally and in almost complete occlusion. I do not know by what mysterious operation nature has brought about this coaptation. It has taken on the type of normality, and the child speaks plainly.

Dr. M. H. Cryer said that he does not believe in *miracles*, past,

present, or future, but he believes in the ingenuity of man in devising ways of remedying the defects of nature. At an appropriate time he said he would demonstrate why the jaw is not narrowed by this operation. The upper jaw is normally smaller in infancy and old age; the spreading is done by the bone which carries the teeth.

The regular order of business was now resumed, and the work of Section III. again taken up. Dr. J. N. Crouse read a paper entitled "A Résumé of the Important Changes that have taken place in Dentistry during the last Thirty-five Years."

In this paper Dr. Crouse described the facilities (or rather the lack of facilities) for the study of dentistry when he began the study, with only four dental colleges in the world, with a course of study of two years of four months each; before the introduction of the rubber dam, of cohesive gold, or of the mallet, or the invention of the dental engine. He described the Arthur system for the prevention of decay, and showed *per contra* the importance of the restoration of full contour, although shallow cavities on the proximal surfaces of the six anterior teeth may often be advantageously obliterated by judicious cutting from the proximo-lingual surface, when, in the majority of cases decay will not recur. Dr. Crouse briefly reviewed the work of Dr. W. D. Miller in the discovery of the real causes of dental decay; also the "new departure" theories promulgated by Dr. Foster Flagg and others, and the injury done in carrying out these theories. The conclusions from this review of the past are,

First. That the practice of filling with non-cohesive gold in the form of cylinders is too valuable to be abandoned, the use of cylinders being specially indicated at the cervical margins of large proximal cavities, finishing and contouring with cohesive gold.

Second. That heavy gold can be packed in a cavity more uniformly and with less pressure than lighter gold.

Third. That when the ravages of decay are the most active, and the walls very frail, gold is the most valuable material to use.

Fourth. That for very many cases gold is not so desirable, not because the teeth are too soft, but because the peridental membrane is likely to be disturbed and injured.

Fifth. That it is wise practice to protect the danger-points by extension of the cavity where decay is likely to recur beyond the filling.

Sixth. That the occluding surface is impaired by open spaces; this should be overcome by contouring.

Seventh. That the great question yet unsolved is to ascertain the cause of dental caries; what conditions cause the radical difference in different mouths, or in the same mouth at different times.

DISCUSSION.

Dr. S. B. Palmer, being called upon to open the discussion of this paper, said that he would only speak to that portion touching upon the cause of dental caries. He had been represented as holding a theory opposed to the views of Drs. Miller, Black, and Williams, and wished to correct this misrepresentation. Also in regard to the use of gold in cavities in teeth with undeveloped dentine, dentine which is yet receiving support from the pulp; in the presence of gold the conditions are changed, become abnormal, and the dentine ceases to calcify in contact with a filling which is a non-conducting medium. Gold does not have that effect in a tooth of mature normal structure, but in teeth of a low grade, with highly organized dentine, calcification is checked, calcic deposits cease, and decay continues around the filling. Under proper conditions gold preserves the tooth, but not in the conditions mentioned.

Dr. G. V. Black did not hear the paper, but had heard some of the discussion. It is very interesting to look back and note the development of thought in the line of operative dentistry. In conservative dentistry the operation of filling teeth holds the principal place. The study of dental caries, and of operations for the arrest or limitation of the injuries produced by caries, is a most interesting subject. The older men among us began their work during the reign of soft gold, or, more correctly speaking, non-cohesive gold, the successful use of which required that the cavity have four good walls, cylinders being the only proper form in which to use non-cohesive gold. Then came the use of cohesive gold, and the heavy foils 60, 120, and even double that, and back again, from 11 to 20 being now considered a heavy foil. Then came the crystal gold, the precipitated gold, that is so beautiful and works so nicely; and yet there are conditions, as may be demonstrated, that will forever prevent this beautifully working material from being *the gold* for our use. The welding property of gold should be studied thoroughly by every student in our schools. Chemical experiments should be made and our younger men given a better

understanding of the properties of gold. There is much to be found in the old books which is being lost in the present generation, which is well worthy of their careful study. Unless we connect the present with the past we cannot judge what are the waste products and what still holds good. The present is but the past made more perfect.

Dr. J. Y. Crawford.—Time does not permit of comment upon all that is called up by the paper read by Dr. Crouse. It is right that we should recall the history of dental operations, of the earlier dental surgical operations. It was said last night that the study of dental history belonged to the last year of the college course, and yet we require that the student shall be familiar with the history of his country before he enters the dental college. How much more should this be the case with the history of his chosen profession. He should take it up at his entrance into the college, that he may have some conception of the wonderful field that lies before him. The last proposition in the paper enunciates the true philosophic doctrine in the study of the etiological factors in caries. This disease, which has the elements of infection and contagion, will yet yield to the great law of immunity. We know there is a condition of partial immunity, and if partial immunity be possible, perpetual immunity should also be a possibility. I see no reason why caries should not be subject to the same law of immunity as small-pox.

Dr. C. Edmund Kells desired to take exception to the view taken by Dr. Crouse of the "new departure" theories. Much has been said about the bulging and spheroiding of amalgam, but it will be found, if carefully examined, that the cavities have not been properly prepared at the margins; the enamel edges have broken off and left the amalgam standing; hence the appearance of bulging out of the cavity.

Dr. H. J. McKellops.—I am not an amalgam-stuffer, as you all know, but if you will use amalgam, after you have cleaned your cavity out nicely put in a good foundation of oxyphosphate cement, and you will have no decay under it. I ask you to investigate that point; try an oxyphosphate lining for cavities in children's teeth until they are strong enough for gold. I defy you to produce a case of decay under oxyphosphate if it has been properly put in. I have been practising dentistry nearly sixty years, and I have never become used to amalgam nor found any necessity for it, and yet you continue to place that stuff into teeth; it

wears out, and you have to replace it; it does not save the teeth. There are other materials that do protect the teeth. Why do you use it?

Dr. Noble.—In regard to the “Arthur” method, I have a little incident in mind that bears on that point. In 1854 a young man came to me to have a filling inserted in the superior left lateral incisor. I found that it was a very shallow cavity, and that a very little cutting from the lingual surface would entirely remove it. I could see no objection to doing that, so I cut a very little away and polished the surface and dismissed him, satisfied that I had done what was right. But the young man’s father came to me, very much enraged, saying that I had ruined his son’s tooth, and threatened to have me sued for damages. The case was examined by Dr. Maynard and others, and some of them thought that I had done wrong in cutting away the tooth. That was in 1854, and I saw that man only a few weeks ago, and that tooth is perfect to-day. Other teeth that were filled at that time are badly broken down, and if I had done for them what I did for the lateral incisor, it would probably have been better for them. I fully believe that for shallow proximal cavities in the incisor teeth a little cutting away from the lingual surface is better than to dig a big hole in the tooth.

Dr. W. C. Barrett.—As we get old and lazy we grow fonder of the cements. Dr. McKellops is neither old nor lazy; he is immune to the defects to which some of us plead guilty. In my younger days nothing but gold could satisfy me. But I am getting old and lazy, perhaps, and I find that I can satisfy both my conscience and my patients with other materials than gold, and I believe that I have done my duty so long as I preserve the integrity of the teeth. I admit that I cannot comprehend the mysterious nature of amalgam. I have followed the work of Dr. Black. I have investigated the theories of Dr. Palmer, though I cannot say that I agree with him that tooth substance can be dissolved through the agency of electrolysis; yet caries goes on around the work of the best of us under certain circumstances. At the bottom of it all gold is the only thing that really satisfies the longings of the inmost soul of the honest dentist. But there are cases when we must use the next best thing, and that is one of the plastics, renewed again and again. There may be a little loss of tooth-substance, but it never need approach the pulp; and as we get older and lazier we find that we rely more and more upon it. It now satisfies my conscience, and I really

believe I render my patients better service and greater satisfaction with oxyphosphate renewed as necessary than I could with gold.

Dr. Crouse, in closing the discussion, said that he had two or three objects in view in this review of the past, but the discussion of cements was not one of them; that will come up later in connection with other papers. He wished to emphasize his first proposition. "Cylinder-filling" is almost a lost art, but individually he would not like to practise dentistry if he had to give up cylinders. If a large cylinder is laid at the cervical margin of a cavity and cohesive gold driven into that, a more accurate operation will result than if all cohesive gold is used. He desired to make a special plea for the use of gold in difficult cases. Where we have frail walls, there we want a cohesive gold. There is nothing like gold to keep the profession up to the standard as skilled operators. He said, "I am an enthusiast for gold; when I get it just right, perfect, I am glad I am a dentist. If I ever use plastics it is when I get lazy. As to recurring decay the filling must be carried beyond where decay has gone. Remove all defective structure, and be sure you go far enough."

Dr. G. V. Black.—I have had an experience now of five years with an amalgam that does not flow, that neither shrinks nor expands. I have made fillings under conditions such that I could observe them closely, and I have seen neither shrinkage nor expansion, and not a single discolored margin so far as I am able to judge, and I am watching them closely. It is now my opinion that fillings made of an amalgam that is properly constituted and annealed, will give this good result.

Dr. Crouse.—One word more in closing. I omitted to speak of the method of removing superficial decay by cutting it away early. I recently removed a lateral and a central incisor from which, twenty-eight years ago, I filled one side and cut away the other. I have since had to refill the filled cavities, but the side that was cut away has never decayed. In all my experience there has not been, to my knowledge, a recurrence of decay when it was early removed by cutting away and polishing the surface. It does not come back.

On motion, adjourned to 7.30 P.M.

(To be continued.)

THE NEW YORK INSTITUTE OF STOMATOLOGY.

A REGULAR meeting of the Institute was held on Tuesday evening, June 13, 1899, at the office of Dr. Chas. D. Cook, No. 162 Remsen Street, Brooklyn, the President, Dr. E. A. Bogue, in the chair.

The minutes of the last meeting were read and approved.

SPECIAL TOPIC: EROSION.

Dr. Wm. H. Potter, of Boston, Mass., read a *résumé* of a paper by Dr. M. Michaels, entitled "Du rôle de l'hyperacidité organique et des sulfocyanures salivaires dans l'abrasion chimique des dents."

Dr. Potter.—In preparing a *résumé* of the paper under consideration two courses suggested themselves to me. One was to present the contents of the paper briefly in my own language, and the other to present literal translations of the most important parts. I chose the latter course, thinking that by so doing I could more accurately present the writer's thoughts, though I realized that a *résumé* prepared in this way was in danger of seeming fragmentary and without the accurate sequence which would be found in a paraphrase.

The author begins with a description of the "acid diathesis," so called, going into the physiological chemistry of the subject. He quotes from M. Gautrelet to the effect that "alkalinity promotes organic oxidations and acidity diminishes them." There follow charts showing the increased acidity as shown in the urinary analyses of gouty and rheumatic subjects. As to the dental manifestations of this diathesis let me quote literally, as follows:

"By the side of the collection of types which characterize this acid diathesis we sometimes observe characteristic accidental symptoms affecting the dental appliances of the buccal mucous membrane, as, for instance, arthritic gingivitis, alveolar desmodynia, pain in a ligament, buccal acidity, loosening of the teeth, nervous constriction of the palate, alveolar-dental pyorrhea, expulsive gingivitis, chemical abrasion, deposit of sordes, dental tartar, and the caries diathesis.

"As a result of my observations on affections of the buccal mucous membrane, and on certain characteristics of dental caries shown in the mouths of the hyperacids, I have been led to study these characteristics varying from individual to individual.

"I have been able in the same course of investigation to study the chemical composition of the saliva and also of other secretions, as the sweat and urine. In the urinary and salivary analyses of subjects presenting chemical abrasion of the teeth the rate of total acidity was less than with the out-and-out hyperacids, like those having gout and rheumatism: uric acid was even wanting in the polariscope examination; on the contrary, oxalic acid was present in these urines in the form of crystallized oxalate of lime. Sulphocyanide of potassium or ammonium was present in the salivary secretions in a quantity more than normal. With these individuals the characteristic manifestations about the gums were absent, but abrasion of the teeth was manifest. I do not wish to decide on the spot whether the salivary glands secrete an increased amount of sulphocyanides, as these principles exist always in the saliva of people who do not offer the characteristic alteration of chemical abrasions."

Here we have, then, the contents of the essay pretty well defined. The existence of the acid diathesis is a well-proved fact, and its connection in a causative way with gout and rheumatism seems very well assured. Dental lesions are also noticed where this diathesis exists, and also the presence of an increased amount of urates and sulphocyanides of ammonium and potassium in the saliva.

The object of the writer is to connect certain dental lesions, and in particular so-called chemical erosion with the presence of an increased amount of sulphocyanides in the saliva, an increase which he claims is always noted in cases of acid diathesis.

In the next section the author quotes from Dr. Etchepareborda, of Buenos Ayres, as to "the influence of rheumatism on the production of diseases of the mouth and dental system." Dr. Etchepareborda has gathered together ninety observations of rheumatic cases, in which he finds the following buccal or dental accidents: Twenty-five cases of simple alveolar absorption; forty cases of simple alveolar absorption with gingivitis; fifteen cases of simple alveolar absorption with gingivitis and osteo-periostitis; eight cases of spontaneous loss of teeth; two cases of caries with alveolar-dental periostitis. The conclusions of the observer quoted were as follows:

I. The teeth, the maxillaries, and the soft parts of the mouth are often the seat of accidents of rheumatic origin.

II. These accidents may precede, accompany, or follow articular

manifestations. They can long remain isolated and constitute the only visible expression of the diathesis.

III. The most frequent accidents of rheumatic origin are the following :

1. As regards the teeth : alveolar periostitis, alveolar-dental periostitis, dental necrosis, and the spontaneous falling of the teeth.
2. As regards the gums : simple or aphthous inflammations.
3. As regards the nervous system : facial neuralgia.
4. As regards the maxillary : alveolar resorption, caries, and necrosis of the maxillary bones.

IV. No one of these local affections can positively be regarded as characteristic of rheumatism. It is impossible to fix their place in the chronology, and the order of succession of rheumatic accidents.

There then follows a description from Bödecker of the characteristics of erosion. The author then adds :

“ I desire to complete this description by drawing attention to certain characteristics of this lesion, particularly in relation with the labial glands. The characteristics of chemical abrasions vary infinitely both in form and depth. But their situation always depends on that of the labial glands, which, as we will see, are the organs secreting, in the pathological conditions which we will determine, the active principle which produces abrasion. It is possible to describe a type of this lesion, which according to my observations is the following :

“ The intermittent contact of the glandular secretion with the surface of the tooth gradually dissolves the enamel. The lesion does not spread at first, but scoops out the tissue, since it depends essentially on the situation of the secreting gland.

“ At this stage, and according to types which I possess, the abraded surface presents jagged edges, the bottom is smooth, and the tissues have preserved their color. In course of time the hollowed cavity increases in depth and sometimes mines the tissues under the enamel. In these cases the active principle spreads in this direction and so produces the lesion. Usually the sides of the abrasion are sharply cut, although in some cases they are more or less dull.

“ No form of caries presents a like appearance, and the two processes cannot be confused. The affected teeth are more or less in number. Sometimes one or two may present the abrasion, in other cases a large number. The duration of the destructive

process is relatively long. The active principle is secreted in infinitesimal quantities, and, moreover, the contact between the tooth and the orifice of the labial glands is intermittent.

"After what has been said above, of diathesis in general and of the changes which they impose upon organic centres, it is in the saliva that we must seek for the cause of this lesion.

"The situation of the duct of the labial glands must be relied upon to explain the localization of abrasion. The labial mucous glands are situated between the muscular layer of the orbicularis of the lips and the mucous membrane which covers them. They are very numerous, and form a complete ring about the buccal orifice. They are grape-shaped glands, furnished with a main excretory canal enlarged at its inferior extremity and opening at the surface of the mucous membrane into the vestibular cavity; often the principle excretory duct receives the excretory conduits of small mucous glands.

"In order to examine these glandular orifices, you raise the lips, invert them, and dry the surface. At the end of a minute you see a tiny drop of the liquid which they secrete. The saliva produced by a mixed secretion of the salivary glands is slightly alkaline, and contains a distinctive ferment,—ptyaline,—in the proportion of 7 to 1000. Besides, it contains mucin, chloride of sodium and potassium in variable quantities, sulphates of sodium and potassium lactates, earthy phosphates and carbonates, phosphate of iron, fatty matters, and uric acid derivatives. These are constant elements. But we can also find there in certain conditions, urea, glucose, biliary pigments, lactic acid, and leucine. The fatty acids, acid urates, lactic acid, oxalic acid, and the sulphocyanides represent the acid factors having a great affinity for the chalky base of the tooth. Chemical analyses of the saliva made by the reaction of perchloride of iron show the presence of the sulphocyanides. I have sought to produce experimentally the lesions of abrasion. The theoretical action of the alkaline sulphocyanides (of potassium and ammonium) is the following: They dissolve the organic elements of the dental organs and lay bare the mineral elements, forming with them a sulphocyanide of calcium and soluble phosphates of potassium and ammonium."

Here is a practical test which the author has made. A patient whose anterior teeth showed extensive and characteristic erosions was examined by a chemist with regard to saliva and urine. This examination showed a saliva of neutral reaction possessing double

the amount of sulphocyanides to be found in normal saliva. The sulphocyanides were ammoniacal salts, and not potassium salts as found in normal saliva. The urinary analysis made at the same time gave the signs which characterize the rheumatic diathesis.

In another case, where there was extensive abrasion and extreme sensitiveness of the abraded surfaces, the tests for sulphocyanides showed a small amount in the saliva, but a strong ammoniacal reaction. This case was treated by chemical cautery, with great relief to the patient. The author then enumerates the various cauterants which have been used in the treatments of erosions, and recommends the chloride of antimony (SbCl_3). He directs its use as follows: "Turn back the lip and protect the mucous membrane with a pad of cotton. Dry the surface of the teeth and take in the blunt end of a quill toothpick a small drop of chloride of antimony. Bathe the surface of the erosion, taking care not to touch the gums, and immediately place over the tooth a bit of German tinder of suitable size, which is to be kept in position for some seconds. Finally, wash the mouth with bicarbonate solution. The chemical action of the antimony chloride is often quite painful, but the pain is always of short duration. As to the prophylaxis of chemical abrasion, it consists in a local treatment and in a general one calculated to modify the diathesis. It is possible to stop tooth-destruction by ignipuncture of the labial glands, using a thermo-cautery. These glands are very small and superficial; the least cauterization will destroy them. Moreover, persons suffering from hyperacidity, by modifying their *régime* under an alkaline treatment and by promoting oxidization, will modify their physiological chemistry."

In the closing section the author describes his experiments with which to imitate out of the mouth the chemical process which he claims to be going on in the mouth. A tooth is subjected to a slow drip of a solution of sulphocyanide of potassium, and in a few days' time the enamel presents abrasions exactly like those seen in the mouths of individuals having chemical erosion.

The President.—Dr. Dawbarn, who is to present the case upon which he operated for the removal of the superior maxilla, has arrived, and, in order that he may not keep his patient waiting unnecessarily, this portion of the programme will be taken up before the discussion of Dr. Potter's paper.

Dr. Robert H. M. Dawbarn.—The patient which I am to present to you to-night was shown to the Institute of Stomatology

at its April meeting. The case is one originally of sarcoma of the antrum. At that time quite a number of the members who are here to-night examined her, and several honored me by being present at the subsequent operation.

(At the time when the patient was first presented to you there was a large tumor filling the antrum and causing a decalcification of the superior maxilla. The interesting test of passing a needle through this softened bone was performed at my request by your President.)

She was first taken by her physician to the surgical section of the New York Academy of Medicine, where this diagnosis was made by the surgeons present; and knowing that I am especially interested in this line of work, Dr. Freudenthal sent her to me.

The operation which was performed in this case is called excision of the superior maxilla, but in reality it is a removal not only of the whole superior maxilla, but also of part of the nasal and lachrymal, the entire inferior turbinated, and about one-half of the malar and palate bones.

The incision adopted runs up the middle of the lip, thence along the naso-facial junction, and then follows a line somewhat below the lower border of the orbit, out onto the prominence of the cheek. Within the mouth it runs from between the central incisors, directly backward to the junction of the hard with the soft palate; then transversely outward to the gum, behind the last molar, being careful not to sacrifice the soft palate with the hard. The soft parts are reflected, and the bones are then sawed and chiselled until free. In this case the bone was so softened from disease that it came away in numerous fragments, and not in one piece.

It is doubtful if I would have been able to perform this operation at all, because of the unusual vascularity, had I not as a preliminary step ligated both external carotids. In this way it was possible to control in great measure the hemorrhage: and even then it was necessary before the end of the operation to use intravenous saline infusion to the extent of two litres. The results, so far as the operation itself was concerned, were excellent. Of course it is to be expected that there will be some sinking in of the soft parts, but by no means so great as would be supposed from the enormous mass of bone which has been removed. A good prosthetical appliance in the shape of a dental half-set, with a

plumper for the cheek, will go far to restore both voice and normal appearance.

About a week after the operation I noticed, as a new development upon the operated side, a little swelling of the eyelids. Upon examining I found by very deep pressure a lump, which seemed quite firm, growing from the back of the orbit. It was evident to me that this growth must be of the same nature,—a round-cell sarcoma. The patient willingly submitted to another operation, and this was performed without delay. The right eyebrow was shaved, and the incision ran the length of it and then down the nose half-way. Upon turning back the flap a growth was found on the inner wall of the orbit about the size of a chestnut, and attached so far back that after its removal the optic nerve was easily seen. This tumor being removed, I was about to close the wound when it occurred to me that, it being very near the frontal sinus, the latter also might be involved. I therefore drilled into it and found my surmise was correct: it was solidly filled with the growth. To meet this rare and dreadful complication I had to drill away the entire front wall of the frontal sinus and thoroughly use the sharp curette. As a natural consequence of this operation it would be supposed that the eyeball would turn outward, the superior and inferior oblique and internal rectus muscles having been involved and cut. But a week or two afterwards I found that the eyeball was turning inward. This led me to suspect further involvement within the outer side of the orbit, and upon examination by deep palpation this was found to be the case. Since its discovery it has grown very rapidly. It is a pitiable condition, and the patient's only hope is in another operation whereby this third tumor shall be removed. I am inclined to think it is so large now that it would be the better plan to sacrifice the eye. The operation should be done with great promptitude. I advised it some three weeks ago, but the patient is still undecided. If it is done now we may still, perhaps, be able to do thorough work, which will surely be impossible shortly.

In conclusion, I shall be pleased to have any of the gentlemen present examine the patient if they desire.

NOTE.—As a matter of interest let us add that the following day after this meeting Professor Merple examined the eye by my request and urged immediate removal of it (together, of course, with the tumor in the outer side of the orbit), fearing that otherwise a sympathetic involvement of the other eye would appear and

result in total blindness. This operation I accordingly performed without delay. At the present time (some two months later) there has been no return of the growth reported, and the patient has gained both in weight and color. But the prognosis as to the final recurrence is very bad, when the roots of the malignant disease have had time, before operation, to become so wide-spread as in this patient was the case. During her presence before you I could hardly allude to this fact; but it is the main lesson to be learned, and the chief reason for presenting this lady to you. No reproach clings to her physician, Dr. Freudenthal, whose action was a prompt one in urging surgical intervention. But months earlier her dentist had opportunity to observe suspicious signs of antrum involvement, and maxillary disease. I am sure that no member of this Institute would, under like circumstances, neglect, upon the mere suspicion, to save a human life by at least calling for an immediate surgical consultation.

Dr. C. O. Kimball.—I wish to present to the society the apologies of two of our members: first that of Dr. S. A. Hopkins, of Boston, who is very much interested in the paper of the evening, and who had planned to be here expecting to take part in the discussion; but he says he cannot leave because his little step-son has typhoid fever. The other is from our friend Dr. Andrews:

REMARKS ON THE PAPER OF M. MICHAELS.

BY R. R. ANDREWS, CAMBRIDGE, MASS.

The etiology of the chemical erosion of the teeth has been a most difficult, obscure, and unsatisfactory subject for the dental pathologist to investigate. And notwithstanding the considerable attention that has been given to it by able minds, we are as yet not wholly certain as to its actual cause. It would seem that from all the accumulation of data given us something tangible should have resulted. The paper of the evening, entitled "On the Rôle of Systemic Hyperacidity and of the Sulphocyanides in the Saliva in Chemical Abrasion of the Teeth," as it has been presented, although differing in theory from those of some of the more eminent investigators, is to my mind the most satisfactory and convincing of all. I confess that I would have preferred that the author use the word erosion rather than abrasion in his title, as the definition seems more significant.

So eminent authorities as Tomes and Salter, with very many others, regard erosion as the result of too vigorous use of a stiff tooth-brush, and as being caused alone by friction. But it is not an abrasion of this kind. Magitot regarded the trouble as true caries, and stated that these defects of the teeth were instances of healed caries of the neck of the tooth, or dry caries, without, however, adducing any reasons in support of this theory. Fox speaks of this defect as the removal of the enamel which was not produced by caries. He says it occurs upon the labial surfaces of incisors particularly, which appear as if they had been gnawed. And Fox's description is in accord with the appearance of several different cases which I have had under my own observation within the last few years. These cases are not the wedge-shaped depressions so commonly met with, where the edges are so well defined, but the whole labial surface of the enamel of the superior incisors looks, as Fox has stated, as though it had been gnawed, the deeper depressions being nearer the gums, the whole surface being beautifully polished, but without any definite edges. The only instance which I have ever heard of or seen, of what I suppose to be this same pathological condition of the lingual or tongue surfaces of the teeth, was shown to me by my friend, Dr. L. D. Shepard, of Boston. The patient had lost almost the entire layer of enamel from the lingual surfaces of her inferior cuspids and incisors. They were very much eroded and beautifully polished. The case was so marked that there seems very little doubt but that it was a true case of erosion on this portion of the teeth. Some have advanced the theory that erosion is caused by acid currents of saliva in the mouth passing over the teeth near the gum margin, and that it is this constant current which is responsible for the wearing away of the enamel at this point.

Dr. Black was able to form grooves in teeth artificially by the corroding action of a mild solution of sulphuric acid in water, the outer whirl of the revolving current of this solution causing in time a deep groove in the enamel and dentine of a bicuspid tooth.

Under the microscope the appearance of the section of an eroded tooth is in every way unlike the appearance of true caries. It has the same general appearance as sections of mechanically abraded teeth. Associated with this we may, or may not, find secondary dentine forming in the pulp-chamber. At times this secondary growth is very considerable, sometimes entirely absent. Towards the eroded part of the section we find a peculiar appear-

ance, next that portion of the dentine which is exposed by the erosion. This has been called a *zone of resistance*. It has been the subject of much investigation, and its appearance is undoubtedly caused by myriads of minute, globular, glistening bodies filling the ends of the dentinal canals nearest the eroded surface. Dr. Black considers these globules to be fat globules, produced in the canal by the decayed dentine fibre, but in these cases there are no decayed dentine fibres,—The dentine and its fibres are alive. I have always held Dr. Black to be in error in regard to these globules. What really takes place in the dentinal canals where the surface is eroded and irritated may be thus described: An irritation to an exposed dental surface causes the pulp to forward to the injury, through the canals involved, large numbers of lime globules,—calcospherites. These are found near the injury. They can always be found by using the higher powers of the microscope. It is probable that the globules never calcify in the canals, but of this we are not certain. Robert Arthur claimed that they did, and that the new surface produced never, or seldom ever, afterwards decayed. That the surfaces under discussion are protected from infection is known to most of us. In vital dentine nature always makes this effort to protect an injury. Secondary dentine is formed for the same purpose at the pulp end of the canals.

If this secondary formation of dentine is excessive, it may, and probably will in time, end in the death of the pulp.

A point well worth remarking in the paper of Dr. Michaels is the statement, "No matter how feeble the dissolved chemical element may be, if it have affinity for a base, there is a reaction."

In this statement he must mean "dissolved chemical element" to be of, or have, acid properties, in order to have affinity for a base. With this interpretation, we have a simple chemical law expounded, which is too little appreciated.

The statement is made in my translation that "the alkaline sulphocyanide (of potassium and ammonium) dissolves the *ossien* of the teeth, exposes their mineral elements, and unites with them to form sulphocyanide of calcium, and soluble phosphates of potassium and ammonium."

On looking up the word "*ossien*," I cannot find it. I find *ossium*, signifying "of the bones," and also find the word *ostein*, signifying "animal matter of bone," and I am in a quandary. Is it the fault of the translator?

If this alkaline double sulphocyanide salt of potassium and ammonium can attack and break down the calcic phosphate of the inorganic enamel, it is a fact hitherto, to my knowledge, unknown and very significant. The paper must be considered one of the most valued contributions to the subject of erosion that has ever been offered to our profession. The author's evidence seems conclusive, logical, and convincing.

I regret that I have not the chemical knowledge requisite to give the more critical attention which so able a paper deserves. I can only appreciate and applaud.

Dr. J. Morgan Howe.—This obscure subject is one which has interested me for many years. I remember several occasions on which it had been under discussion, when the question of a uric acid diathesis has been brought up, and the assertion made that chemical erosion is associated with this condition of the system, and again denied by others.

My interest in the subject led me several years ago to have a number of urinary analyses made from patients who had distinctly eroded places on their teeth, but who had little or no other manifestations of uric acid diathesis. One or two had occasional rheumatic twinges. One of the patients, a lady, denied that she had ever had any suggestion in her physical condition of any such trouble. The analyses were made by a well-known expert of New York, and in each case he reported that there was, without question, a large excess of uric acid. Pressure of business and other things prevented me from carrying the investigations farther, but so far they certainly bear out the statements made by M. Michaels,—that erosion is associated with, if not caused by, this uric acid diathesis. The local manifestations of erosion have appeared to me so various that I am unable to account for many of them by regarding them as the result of the action of the fluids exuded from glands in the mucous membrane directly upon the surface affected.

The determination of extent and location of the wasting process by friction does not eliminate the chemical factor, but seems to show that the solvent quality is distributed throughout the oral fluids; although, on the other hand, I have seen linear grooves at the necks of the molar teeth from buccal to palatal side, as though cut with a rat-tail file, where friction could have had almost no effect.

We are much indebted to Dr. Michaels for giving us the results of his investigations. They point, as others have done, to a vitiated or abnormal condition of the glandular secretions, which we can only hope to cope with, from the stand-point of medical men, by seeking to produce such an effect upon the system as will cause these glands to resume normal action.

Dr. Potter.—There are a few words which I would like to say in addition. It is rather unsatisfactory to me that the author does not explain the connection between the sulphocyanides and the urates; why is it that when the urates are present the sulphocyanides are present in increased amounts?

Again, he does not explain the action of the urates in causing the erosion. I cannot find how the urates which at the time appear in the saliva accomplish the erosion. In a conversation with Dr. Hills, the assistant professor of chemistry of the Harvard Medical School, I propounded this theory to him, and asked him if he believed it chemically possible. He stated that he did not think there was enough of the sulphocyanides to produce an erosion. When I stated that it was not accomplished quickly, but might be extended over a period of five or six years, he said that it might be possible. I asked him if there was anything in the nature of a mouth-wash which would react against the sulphocyanides and thus remedy the evil? He said that he did not know of anything unless it was ferric chloride. I told him that that was worse than the sulphocyanides.

The subject of physiological chemistry, it seems to me, is worth dwelling upon right here. In the next term of the Harvard Dental School we are to teach the men physiological chemistry in order to enable them to deal with these conditions, and I do not think that any one who has not had a training in this subject can take hold of these problems with satisfaction. I find myself going back to text-books on urinary analysis as soon as I take hold of the subject. We have about reached our limit in mechanical operations. What we now want to perfect is the treatment of pathological conditions of the sockets of the teeth. We cannot be satisfied until we find a proper solution to questions of this sort, and they are to be found in a study of physiological chemistry. I want to mention a book which is of value if one is to make a study of the uric acid diathesis. It is called "*Uric Acid in the Causation of Disease*," by Haig. Dr. Haig is an extremist, and attributes many diseases to the heaping up of the urates in the tissues. I

do not think medical men generally follow him to the extremes to which he goes, but by reading his book many points are brought out which will serve to impress upon one the value of physiological chemistry.

Dr. Kimball.—I wish to express my personal thanks to Dr. Potter for the clear *résumé* of Dr. Michaels's paper which he has made. It has seemed to me that the theory which Dr. Michaels advances, so far as I understand it, better meets the conditions which we see than any theory of which I am aware. In these erosions of the teeth it seems to me that we should carefully distinguish those which are mechanical from those which show, from their position and shape, that they have apparently some other cause.

We are all familiar with the mechanical abrasion of teeth up at the neck, and we have all seen teeth which have been very much cut by the excessive use of tooth-powder. I remember a few years ago a gentleman came to me with a very disagreeable set of teeth, and I scolded him well about cleansing his teeth thoroughly without giving him any special directions. When I saw him a year later he had cut deep grooves above the enamel of bicuspid and canines on both sides of the mouth. I found he had been using a tooth-powder two or three times a day with a stiff brush. I stopped that, and the teeth did not cut away any more. This simply illustrates the rapidity with which these abrasions may occur.

In those forms of erosions of which he specially speaks, which from their situations preclude any rational explanation as excessive use of the tooth-brush,—the round, pit-shaped erosions which are frequently found on the front of the incisors,—there must be something either in the surface of the tooth which will make the enamel softer, or else something which exerts a solvent influence upon the surface in this spot. It seems to me that Dr. Michaels's theory of the secretions of the labial glands in this connection is very satisfactory. He has shown chemically that not only does this acid saliva contain the sulphocyanides of ammonium and potassium in comparatively large amounts, but he has found that similar solutions used outside the mouth upon teeth will produce similar loss of surface.

In regard to what Dr. Howe said about the erosions attacking the inside or palatine surfaces of the teeth, I would like to mention an instructive case which I observed a few years ago. It was the case of a lady whose teeth had been under my care for a num-

ber of years. Suddenly, at one of her annual examinations, I found that for some reason all the approximal fillings between the incisors were beginning to stand out above the surfaces of the teeth. This struck me as being rather curious, and upon investigation I found that the fillings were not loosened, but that the surfaces of the teeth were disappearing. The front teeth were losing their enamel on the inner surface as far back as and including the bicuspid, first and second, upper and lower. The enamel was nearly gone. The outer surfaces of the teeth were not affected at all. I found that she was taking hydrobromic acid for a headache, without any precaution. I obtained a sample of the same strength as that which she was taking; into this I placed an incisor tooth which had previously been partially covered with wax, and in twenty-four hours all the enamel which had not been so protected was eaten off.

Dr. H. S. McNaughton.—I wish to present several casts of teeth in an eroded condition. The first cast is that of a central and a lateral incisor, showing a groove on the labial surface of the central. The lateral was discolored, showing disintegration, which may be a preparatory stage of the erosion.

This second cast is from the mouth of a young woman of twenty-five, who had retained the two temporary superior cuspids. One of these teeth had had the crown entirely cut off by erosion, the other one nearly so. The impression was taken before the extraction of the teeth, and then the teeth were placed in the impression, so that the cast shows the teeth as they were in the mouth.

Another cast shows a lateral incisor in which there was a large labial cavity. When the case first presented, the tooth had a bright pink appearance, as though there might be a drop of blood under the enamel. On examination I found that there was a large cavity filled with an excrescence of gum; this was removed, and the walls of the cavity were found to be as hard as if cut from a sound tooth. The cavity was filled with gutta-percha. This did not affect the dissolving process, the tooth breaking off at this point after two years.

Another cast shows erosion on the lingual surfaces of all the molars and bicuspid. Casts of upper and lower teeth of the same case, occlusion nearly normal, show erosion on all sides of the anterior teeth.

I wish also to call attention to the fact that the thick labial

mucus may assist in causing erosion without itself being the solvent, by spreading over the surfaces of the teeth, forming an almost insoluble coating, which holds any destructive secretions from the margin of the gums and keeps out the alkaline saliva.

Dr. T. P. Hyatt.—I should like to mention a case which came under my observation a very short time ago. The patient was a lady whose mouth I had thoroughly examined, and the teeth had all been put in good order. There were no signs of erosion previous to her starting South to spend several months. After she had been away about four months I received a letter from her stating that there were two cavities on the labial surfaces of her two superior central incisors. She said that she had called on three dentists, and that they had all advised gold fillings. I wrote to her not to have the gold fillings on account of the disfigurement, and asked her if possible to come to New York and let me examine the teeth, as I could not understand cavities from decay occurring in so short a time. I also, in my letter, advised her to use Phillips's milk of magnesia. She came on, and to my astonishment I found two well-defined abrasions upon the superior central tooth, about one-eighth of an inch from the margin of the gum, oval in shape, and three-sixteenths of an inch broad at the widest part.

I treated them by drying the surfaces and then applying carbolic acid crystals evaporated with hot air, and advised the patient to use milk of magnesia. Since that time the teeth have become no worse. It would be a stretch of imagination to say that they were any better, but I will say that the edges have become less sharply defined.

I should like to ask the question, Is it possible that there are medicines which would cause these abrasions? If so, why only on one or two teeth; or is it likely that they were due to some constitutional derangement?

Dr. Louis C. Leroy.—It is a deplorable fact that there are so few chemical experts in the dental profession who are able to render intelligent scientific opinions or discuss subjects of a chemical nature. As Dr. Potter has said, we need a special education in that department to be able to study a subject of this kind. Erosions of the teeth, such as have been presented to us to-night and which we may find in many mouths, I believe to be not of mechanical but of chemical origin, and distinct from mechanical abrasions. They evidently start from a chemical source, although possibly as-

sisted by mechanical means. Fillings may stop the process for a time, but the erosion will very probably continue around the margin, and in a short time the filling will have to be repaired. I have endeavored to account for this in various ways. I have observed it more commonly in persons of excessive nervous temperament, weak mentality, and cerebral troubles. This point is mentioned as of possible interest at the present moment, although undoubtedly all have noted the same circumstance.

Dr. F. Milton Smith.—The topic before us is one which interests me very much. I never feel my helplessness quite so much as when I have a bad case of pyorrhœa or a case of this kind. I have to be honest sometimes and tell my patients that I do not know what to do for them. I remember having heard what was to me an exceedingly interesting paper upon this subject, read before the New Jersey State Dental Society, about six years ago, by Dr. Winkler, of New York. While he did not go so deeply into the subject as does Dr. Michaels, as I remember, the ground he took was that erosions of the teeth are caused by a secretion from these labial glands. He claimed that he got very excellent results by administering minute doses of creosote. I should like to inquire if any of the gentlemen present heard the paper, or have made any experiments along this line.

Dr. Leroy.—I think the paper to which Dr. Smith refers was on the subject of caries (Addendum, New Jersey State Dental Society Proceedings, 1895, p. 54),—"The Medicinal Prevention of Dental Caries," by Dr. George Howe Winkler, D.D.S., of New York.

The President.—I was pleased to hear Dr. Leroy so carefully discriminate between the words "abrasion" and "erosion." I take occasion just here to state that Dr. Michaels uses these two words indiscriminately. So far as I understand Dr. Michaels, he has reached the conclusion that there is a balance in the system which if preserved means health, and if not preserved means disease more or less marked; that the retrograde metamorphoses which are constantly going on in disease are frequently brought about by some simple failure on the part of the system to properly respond to the breaking-down and building-up processes. Following that line of reasoning, that any deviation from a complete balance is disease, he was not long in analyzing the saliva and testing each one of the elements contained in normal saliva to see if either one could be responsible for erosion. Several years ago—I should think

four or five—I saw his first experiments, which he alludes to here very casually. It was a very nice experiment, and consisted of two bottles, one containing a little distilled water into which had been put one milligramme of sulphocyanide of potash. This was furnished with a glass siphon drawn to a point at the lower end, so that the solution would fall a drop at a time onto a tooth; the other siphon was made small at its short end, and was arranged to touch the tooth and carry the solution away, so that nothing was spilled. In a little time a tooth subjected to this process was eroded. I repeated this experiment here in New York, and I think some of the gentlemen present saw my rough imitation of Dr. Michaels's apparatus and saw the slight erosions produced by this solution of sulphocyanide.

Starting upon this rather slender basis, as he acknowledges himself, Dr. Michaels next caused analyses to be made of the blood, saliva, urine, and sweat of all the patients he could lay his hands on who had distinctly marked erosions. In all of these cases he observed an increase of sulphocyanide, and in one it amounted to five hundred per cent. He told me about this case, and said that the patient, like all the others, was a sick man. I told him of a case that I had had under my observation for ten years in New York, and that the erosion was growing. He replied that he should use the cautery and burn out these ducts, at least, if not the glands. I have not had the courage to do that. I have noted in these cases a marked derangement in the general health, but I have not gone to the extent of making an analysis of the saliva or the excretory fluids.

It seems to me that Dr. Michaels leaves us rather confused in speaking at one time of the saliva containing the large increase of sulphocyanide, and again speaking of the secretion from the labial glands as containing the excess of sulphocyanide and being responsible for the erosion. I think this point might be rectified, and it should be made more clear whether the contents of the saliva or the products of the glands does the mischief. Be that as it may, he has certainly opened up a field for our investigation which should not be closed again right away. I also think we all owe our thanks, individually and collectively, to Dr. Potter for the very careful and accurate epitome on the subject. I shall be very glad if he will close the discussion in summing up what has been said, and making such reply as he desires.

Dr. Potter.—I think I have said all I wish upon this subject.

It is one of those subjects upon which none of us can speak authoritatively. I feel as if the writer has entered upon a very interesting and profitable field of observation, and that it is important that we follow it up to a satisfactory conclusion. While I do not think the paper accounts for all the causes of erosion, still it gives us an incentive to further investigation.

Upon motion, a vote of thanks was extended to Dr. Potter for his kindness in presenting the subject to the Institute, as well as to Dr. Dawbarn for presenting the case of sarcoma of the antrum. The Secretary was also instructed to convey to Dr. Dawbarn's patient the condolences and thanks of the Society for her affliction and her kindness in consenting to appear before the meeting.

Adjourned.

FRED. L. BOGUE, M.D., D.D.S.,
Editor The New York Institute of Stomatology.

MASSACHUSETTS DENTAL SOCIETY.

(Continued from page 759.)

INFECTIOUS DENTISTRY.

BY ANDREW J. FLANAGAN, D.D.S., SPRINGFIELD, MASS.

By the title of this paper my audience may think that here is another one of those papers dealing with the great "bacterial question," a long list of infallible remedies, and last, but not by any means least, a long list of unhappy results, and even deaths owing to the inability of the individual to master the pathogenic forms.

We who have read the dental and medical journals for the last ten years have noticed that all that which can be gathered under the one word "antisepsis" has been of vast amount, and presented in such a form that we may have had a veritable bacteria nightmare at times. Now, while dentists have advanced in this line, the public also has kept apace, for the public press has fairly teemed with matter relative to this subject. Journalism of the present day is of such a broad character that we read much that a few years ago was confined to technical journals. Such being

the case, it behooves us to so practise our calling that there will be no question as to its cleanliness in the minds of the laity. The Commonwealth of Massachusetts to-day offers a field for the intelligent practice of dentistry surpassed by none; we see every year a goodly increase in our number here, and the vast majority seem to gain a fair practice, and it is fair to presume that this increase will still continue, for the law of demand and supply will ever be the means of regulation. In order that this writing may be of a logical nature, I will define infections as that which *may* infect, contaminate, vitiate, or corrupt. Understand the word *may* is used; and those who are of a sensitive nature in discussions of this kind may take refuge accordingly. There is also a little quotation I would have you carry in your minds,—“If we could but see ourselves as others see us.”

For the last three years it has been my pleasure to be associated with many physicians while acting as a member of the House of Mercy Hospital staff in the city of Springfield. In that time we have had several cases where infection *may* have been the cause of the trouble. In tracing out the history of one of these my eyes were so opened that it was decided to look thoroughly into the question of “antisepsis” as practised by the average dentist. The saliva-ejector is a most useful adjunct, but it needs great care to keep it in a thoroughly clean condition. A short time ago a student in an office in our city pointed to my ejector, and said he would not have that used in his mouth. Being questioned for a reason, he said the doctor always tended to the cleaning of this, and he had seen him use it time after time on different patients without boiling. It has been found that burs, clamps, and broaches do not get the care that excavators, etc., do. The use of modelling compound the second time presents food for thought. How can it be sterilized? Brushes, cups, and disks used in cleansing the teeth are often used again without sterilizing, even after dipping into blood and pus. Are we always careful in the use of our stones for grinding in the mouth? Many teeth are extracted and patients sent from the office without instruction as to subsequent care. It is common for these cases to afterwards fall into the hands of reputable physicians for treatment. I have been astonished to hear the criticisms given by intelligent people on certain procedures in our every-day work, and this thought has presented itself,—how long can the public be fooled without disastrous results to the good name of dentistry?

How common it is to hear dental practitioners deride the knowledge the average physician seems to possess of lesions in the oral cavity. We had best remove the scales from our eyes when this criticism extends to that which we will call antiseptis. The writer has always found the hand of friendship extended from the ranks of medicine, and the true worth of dentistry acknowledged. Not long since a bright M.D. asked me how it was that he had seen so much hypertrophy of the gums in his practice; the patients had been to the dentists for treatment, and in every case said treatment consisted in the removal of salivary calculus and polishing the teeth. How common it is to see beautiful fillings and crown-work, and yet the soft tissues of that mouth in a diseased condition! How can our patients have good digestion and a fair condition of the breath where such conditions exist? How common to hear at our meetings the wish for papers and clinics of a more practical nature! A clinic given on the common diseased conditions of the mouth would be of inestimable value, and might lessen in the future the number seeking relief by the service of the physician, for it is in the domain of pathology and surgery that the future of dentistry rests.

We have had our age of the tooth-carpenter, and we will now have that of the tooth-doctor. Then we will not hear practitioners expatiate on how many teeth they can extract in a second; how many books of gold they can condense in a half-hour; and how they can beat the handiwork of the Creator by having the strain and stress of fourteen teeth done by four. Gentlemen, this is the period of prophylaxis, and I trust that we may live to see dentistry broadened to its true professional proportions. The fountain head is not higher than its source, then let us each strive for that breadth of knowledge which hinders not but hastens development.

DISCUSSION OF DR. FLANAGAN'S PAPER.

Dr. N. Morgan (Springfield, Mass.).—I do not care to say much now, but I would like to inquire of Dr. Flanagan what he would suggest in the way of antiseptic dentistry.

Dr. A. J. Flanagan.—Well, I will tell you why I presented that paper. It is not a technical paper; it is simply a statement of facts which have come under my personal observation in the last three years. My idea of dentistry is this: you cannot make a profession of it unless you have professional members practising it. Why is it that the average dentist does not follow correct

asepsis in his practice? He is being observed by intelligent people, people, in some instances, without a very high idea of dentistry, I think there are more dentists to the number of people in Massachusetts than in any other State. You will find that there is not the feeling between the medical profession and dentists that there should be, and if you will get a friendly physician in the right condition, he will tell you why he thinks we are weak. Now take the people who do extracting; a patient will go to them and they will extract a tooth, and that tooth is in an unhealthy condition, or the gums are from which the tooth is taken. They will extract the tooth, get their half-dollar, and the transaction is ended. The doctor does not give the patient a mouth-wash or instruct him to come back and have the cavity treated, but he is allowed to leave the office, inflammation sets in, and the patient, fearing serious results, calls in a regular M.D.

We will take the condition of diseased gums as we find them presented to the medical practitioner. He examines the mouth, and finds that the patient has been in the hands of a reputable dentist, and yet the gums have been left in a diseased condition. Yet we claim to be doctors of dental surgery. If there is hypertrophy of the gums, what does the ordinary dental practitioner do? He may place a little iodine on it, but how very seldom is a lancet or a pair of shears taken to remove it. Now, there is no reason why we should not do it rather than leave it for a physician to do afterwards. It is a common thing for a physician to have a practice among dentists of administering ether. He goes into their laboratories, he sees the dentist come in after treating a patient, and at times he observes the dentist using the same instruments over again which have been used in treating a patient, and they have even been immersed in blood and pus, and the sterilizing consists in immersion in cold water and wiping with a soiled towel or napkin. I find that there is a good deal of truth in the statement that we do not always attend to our instruments as we should. The question of modelling compound has raised quite a little trouble. One of the physicians up our way recently asked me if I ever used modelling compound a second time. I told him I did. "How do you sterilize it?" You cannot boil it. The only way you can sterilize it is to take a solution of bichloride of mercury, or something of equal power. That called to my mind the fact that I was doing something that was not right. Since then I have sterilized my modelling compound when using it a second

time. I am not going to tell you how to sterilize instruments, for you all know, even if you do not practise it. I boil my instruments where it is possible, and when not, I use bichloride of mercury in solution. My paper was not to tell you how to sterilize, but to tell you that we do not take proper care in keeping our instruments thoroughly clean.

TURPENTINE.

BY R. H. CLARK, D.D.S., NORTHAMPTON, MASS.

I have not selected for your consideration a new subject, but one the name of which is familiar to all, and its specific properties are of great value in many dental operations.

I can make no claim for originality for the applications of turpentine, except to apply to conditions similar to those treated by our friends of the medical profession. Some of these have, so far as any previous knowledge of drugs is concerned, been unknown to me, and thus may be original.

If there is a question in all the realm of our profession so perplexing as inflammation, and how best treated to insure comfort to the patient and gratifying success to the operator, it has not appealed thus to me. My preliminary education in dental branches was inadequate to answer the question when confronted by it, and only by a conscientious determination to acquire knowledge have I been partially able to fulfil my duties.

I do not claim for turpentine that it is the most valuable agent, but make the claim that it stands without a peer in alleviating certain conditions to be described hereafter.

Turpentine is of strong, diffusive odor, hot, pungent taste, non-corrosive, antiseptic, germicidal, preservative, an antiferment and disinfectant, and is practically non-poisonous, because adults have been known to have taken from four to six ounces without loss of life. Howbeit, overdoses taken internally produce nausea and thirst, a febrile state is induced, muscular strength reduced, co-ordination impaired, strangury develops, and finally profound insensibility and abolition of all reflex movements. It is obtained from species of pine, and by distillation the oil is produced. It readily absorbs oxygen, which it retains with great tenacity, hence enhancing its value as a remedy. Its action, when applied to skin or mucous surfaces is counterirritant, rubefacient, and anodyne. Its physiological action produces heat and redness followed by

vesicular eruption and sometimes ulcerations. The heart's action is increased, arterial tension arises, a general sense of warmth and exhilaration of parts are experienced. It stimulates the vasomotor nervous system, exhausts the irritability of sympathetic ganglia, and stimulates respiration.

As an antiseptic, medical experts are satisfied that it is a product which produces a beneficial physiological action, and many thorough and painstaking investigators, in hospital and private practice, have established its claim to a very prominent place in the field of antiseptics, because in surgical dressings a thorough antiseptis of the wound's discharge is effected.

It is also given internally to combat many distressing and serious diseases, as cholera, disease of lungs, etc. In germicidal properties it ranks second to bichloride of mercury, and is preferable because of its harmless nature. It prevents fermentation, and in the arts is invaluable on account of its great preserving properties. In dental therapy we find use in the following pathological condition: It counteracts the after-pain of tooth extraction. It is valuable as a root-canal dressing, the penetrating properties of the oil being carried throughout the canals of roots, even to the apices, thoroughly antisepticizing and rendering, finally, by its irritating nature the incipient abscess (if one) as nil. In periostitic troubles it is no doubt without a parallel. By its counterirritating properties that acute inflamed condition becomes quieted, and smiles of appreciation illumine the faces of our patients.

In cases like the above its action is peculiar according to the vitality of the patient. Sometimes it acts as a resolvent, again it hastens (or seems to) ulceration.

In leucoplakia, in scurvy, or those turbulent conditions evolving hypertrophy of the gums, it acts quickly, quietly, and very effectively.

In mercurial stomatitis it has no superior. Let me emphasize its use to this pathological condition. In at least half a dozen cases in my practice it has never failed as yet to perform that for which it is intended. In operations for necrosis it acts to relieve that condition of intense pain.

It is an antidote for phosphorus, preventing the formation of phosphoric acid, and converts the substance into an insoluble spermaceti-like substance. Thus it is indicated in the phosphoric necrotic condition in mouths of those working in match-factories.

In all cases it tends to arrest the hemorrhagic exudations, fermentation, and putrefaction processes, with but little pain attending its application.

As a counterirritant we use it thus: To one part turpentine add one part aconite and two parts iodine. Apply directly to afflicted parts by means of a cotton swab saturated with it.

In hypertrophic conditions, remove all irritated surfaces; apply oil of turpentine in such strength as is practicable.

If I have revived in your memory the application of one of the most useful of remedies, the trip to this convention has not been in vain, for I can assure you, if you will use it you will agree with me that its value has not been overstated.

DISCUSSION OF DR. CLARK'S PAPER.

President H. S. Draper.—Gentlemen, Dr. Clark's paper is before you for discussion. The remedy in connection with dentistry is new to me, but if there are any who have tried it, we should be pleased to hear from them.

Dr. Geo. A. Maxfield (Holyoke, Mass.).—I have not had any experience with the use of turpentine personally, but last Decoration Day I had the pleasure of riding with an old veteran who had lost a leg in the Civil War. He told me his experiences as to how he lost the leg, how the surgeons used the same sponge for from fifty to a hundred men, and how his leg, where the amputation had been performed, first mortified, and then became a mass of maggots. The surgeons told him that he was threatened with gangrene, and that it was doubtful if he would ever recover. Finally, he bribed one of the nurses to bring him some turpentine, and succeeded in procuring about a pint. He took the stump of his leg and poured the turpentine in, and in less than an hour he poured out over a pint of dead maggots. When the surgeon came around again he said, "What has been going on here?" He said, "I have been washing it out with turpentine." He used it for about three days, when the surgeon said he could send him home in a few days, and in three weeks' time it was healed.

I cannot explain why this well-known remedy should have passed out of use. I am glad Dr. Clark has brought this before us, and I hope more study and experiment will be given to it.

Dr. J. King Knight (Hyde Park, Mass.).—Dr. Clark has used the expression "oil of turpentine." Does he mean the oil or the spirits?

Dr. R. H. Clark.—I do not know of the different kinds of turpentine. It is not dissolved very readily in water, but it makes a mixture that you can readily use. When using it I mix it with warm water.

A young lady, about sixteen, with a fistula that had been treated by a doctor of medicine, came to me for relief. I removed the sixth-year molar, and treated the socket just once. I then went to Michigan, returning Monday, and saw this case, and it was well.

President Draper.—I would like to ask if this has been used in cases of empyema of the antrum.

Dr. R. H. Clark.—I never have used it for that.

Dr. B. H. Stout (Taunton, Mass.).—Dr. Clark in his original paper suggests a combination of turpentine, aconite, and iodine. Was this mixture used in this instance in his treatment of the sixth-year molar? If so, it seems to me Dr. Clark lays too much stress on the value of turpentine and not enough on the other two ingredients. If he had washed out the mouth with water, would not the result have been the same?

I think it is one of those things which must be used with caution, and I should want to know the authority for the statement that turpentine stands next to bichloride of mercury as a disinfectant. I do not think the medical profession use turpentine as a disinfectant, for I think there are other and milder remedies which are more powerful and better germicides than it.

Dr. G. A. Maxfield.—I know a few years ago a remedy for peritonitis was turpentine stupes. They would wring out a cloth from hot water, sprinkle it with turpentine, and put it on the inflamed parts.

Dr. B. H. Stout.—A turpentine stupe is an old remedy, and probably would not now be used in peritonitis.

Dr. Lewis S. Breed (Rosindale, Mass.).—Two years ago I was in the Massachusetts General Hospital for two months, with a case of appendicitis, and for four days after the operation I was in fearful pain. They gave me turpentine enemata, which gave me such relief that I called for them much oftener than they would give them to me. I have ever since blessed turpentine.

Dr. W. I. Brigham (South Framingham, Mass.).—There was a man I knew who had a tapeworm. They gave him oil of turpentine, and it killed the tapeworm.

Dr. S. G. Stevens (Boston, Mass.).—Was it the oil or the spirit?

Dr. R. H. Clark.—I have always used the oil of turpentine.

Dr. S. G. Stevens.—Did you ever give a patient turpentine to take internally?

Dr. R. H. Clark.—The preparation I have used in dentistry as a wash is a mixed condition (because of its insoluble properties). I have used it with iodine and aconite. I admit that we use iodine and aconite in fixed and definite proportions of each, but if you use turpentine it has a better effect. It was given to me in Michigan as a suggestion. The wash I have used is just as strong as the patient can comfortably bear. I assure you, gentlemen, that it is a benefit to use it.

Dr. S. G. Stevens.—I have not received an answer to my question. I do not know whether we are using oil of turpentine or spirit of turpentine.

Dr. W. I. Brigham.—If you buy oil of turpentine, you get spirit of turpentine. If you buy spirit of turpentine, you get oil of turpentine. They are both the same.

Dr. Geo. A. Maxfield.—You know it is very unsafe for a pregnant woman to go into a room that has been recently painted. I do not know that it is the turpentine in the paint that causes the trouble, or the lead or other matters used, as I have not experimented very much with turpentine. We ought to be well informed on that question.

Dr. George T. Baker then read his paper on "Dental Surgeons in the Army and Navy."

(For Dr. Baker's paper, see page 773.)

DISCUSSION.

Dr. J. King Knight (Hyde Park, Mass.).—I believe that every one here believes emphatically that the army and navy should contain a dental corps without any question. I cannot think that any intelligent dentist believes otherwise, and with that in view, I move that resolutions be passed here and forwarded to our Congressional representative. We should have a representation in the army and navy. They are one hundred years behind the times.

The motion was seconded and the question put by the President and carried.

Dr. J. King Knight.—My idea was that a copy of that resolution should be sent to our Massachusetts Congressman, and then all those professional wire-pullers are to use their personal influence.

Dr. A. J. Flanagan.—It has been my experience that when you

send a letter through the mail to a Congressman, it sometimes reaches the waste-paper basket. He will ask the question, "Who are the members of this Massachusetts Dental Society? Have they any votes? Now, in my opinion it would be a better idea to appoint three men, good practical wire-pullers, and I would move you that a committee of three—but with the understanding that the speaker is not to be a member of said committee—be appointed, to take this matter and do as they see fit. I offer this as an amendment to Dr. Knight's motion.

Dr. Carl R. Lindstrom.—Do I understand that there has been a time set when this committee shall report?

Dr. A. J. Flanagan.—My idea was that it start immediately on its work and make its report at the next meeting.

Dr. D. Hurlburt Allis.—Have we not a Legislative Committee for this purpose?

President Draper.—The Legislative Committee is not for this purpose, but if there be no objection they might take this on their hands. Will Dr. Flanagan state how he wishes this committee appointed?

Dr. A. J. Flanagan.—I do not care how the committee is appointed, but I do not think a committee of five is as good as a committee of three, and I think the chair should do the appointing.

(To be continued.)

Editorial.

DESTRUCTION BY FIRE.

THE total destruction of the extensive establishment of the J. B. Lippincott Company involved not only a heavy financial loss, but it is doubtful whether all, or any, of their valuable publications will be saved. The extent of this destruction can only be determined by a thorough examination of their several vaults.

The destruction of this number, prepared for the press, was complete, and required resetting under difficulties. We are under obligations to the editor of the *Dental Cosmos* for his offer of any assistance within his power. We are also indebted to that journal for the half-tone of the Horace Wells bust, the one prepared for this number having been destroyed.

We trust our readers will make due allowance for any deficiencies apparent and for the delay in the issue.

RETROSPECTION.

THE natural tendency of the mind is to review the past, and to the average reader the history of human effort and its failures is more interesting than the present experiences or anticipations of the future; hence the thought at the beginning of the last month of the year turns naturally to retrospection. This is, or should be, equally the duty of professions and individuals. The business man takes an account of stock at this period, closes his books for the year, and the balance sheet will show loss or gain.

The profession that fails to do this year by year may make history, but it cannot properly appreciate it, and, in not appreciating it, it equally fails to note defects or to remedy them.

The first half of the present century found dentistry made up of widely separated and strongly individualized operators, and these possessed neither retrospective nor anticipatory qualities, or, at least, failed to manifest them. This was natural for the period, and in nowise reflects upon the intelligence of the workers of that day. The time in which we are active is altogether different, and the man who fails to keep in touch with the history of his profession, whether this be for a day, a week, a year, or through the centuries, is lacking in that which goes to make up the rather undefined term, professional spirit.

The century of work does not close for another year, notwithstanding some would have us believe that 1899 finishes the century, and it is, therefore, unnecessary to include the work of this period in the outlook of the past.

The question that concerns us now is not what was done by the fathers, but what we are doing, or have been doing the past twelve months, to make our profession worthy of our own respect and that of the world at large. This is, perhaps, a difficult question to answer. History cannot truthfully be written while the scenes it attempts to portray are still fresh in the mind of the observer. The broad view that the historian is supposed to take is not possible for the active participant. The soldier sees but a small part of the conflict in which he is engaged. This is equally true of each member of the professional army. All have a specified work to do,

and are generally doing it well, but the sum total of effort and its influence for good or ill cannot be computed in a limited period. When Spooner introduced arsenic for the devitalization of pulps, neither he nor his contemporaries could possibly have anticipated its far-reaching influence on the dental mind. In their view it was simply a means to remove an obstruction, and that obstruction was a hyperæsthetic pulp; but as we look at it now, its introduction led to an entire change in methods, and from this, apparently, simple procedure arose more perfected processes in pulp-canal treatment, new forms in instruments, a higher appreciation of the value of teeth, and eventually led up to a determination to make the forceps the very last resort of the practitioner. The philosophical historian can, therefore, deliberate upon causes and see the results more effectually in proportion to the distance he is removed from the immediate activities. The year, therefore, has a limited outlook, but while its sphere of observation is a narrow one, it nevertheless is useful as a factor in mental growth.

The one now nearly past has not been remarkable from our limited visual range, and yet, when the activity of the members of the dental profession is considered, it must take rank with the best of the years preceding. While, with few exceptions, the papers presented in our various organizations have not been remarkable for original work, their average value has been worthy of note; in fact, more readable matter has been presented, both at home and abroad, than usual in the same period. This was especially noticeable at the National Dental Association, but dental readers must have observed the same marked improvement in all the leading dental organizations. While there have been but few papers presented based on original investigations, these have been of decided value and have added materially to our knowledge. The dental profession is fast growing out of its swaddling-clothes, and does not value the writer who says, "I think," or "I believe," but does honor the one who can prove his position; or, in other words, absolute knowledge has become a power, and mere verbiage, however panoplied in technicalities, is being relegated to deserved obscurity.

There has not been the past year that progress along the line of college work so manifest in former periods. Perhaps this is well, as too rapid growth leads to weakness. It is by no means certain that all that has been done in the direction of dental college training will eventually prove of value. We are too near the centre of activity to judge, but it would seem as though present

tendencies will not prove advantageous to dental education. Without harmony progress is impossible, and there is too much contention over matters of minor importance to make the present outlook altogether hopeful. That the inharmonious will be settled in time there can be no question, but the antagonism engendered by State enactments was not quieted at Niagara, although an excellent beginning was made there which materially brightens the prospects for the future. Some progress has been made in interstate recognition, and it is hoped that ere long the incongruous condition of one State legislating against another will have ceased as a disturbing element.

There has been a marked improvement in our periodical literature. Those journals devoted to dentistry and issued by tradehouses are, apparently, making a decided effort to elevate the tone. The supply houses are beginning to recognize the importance of having men of broad intelligence at the helm, and that these must be untrammelled by trade influences. While independent dental journalism cannot flourish under commercial trammels, it is a satisfaction to note that progress is being made here, and this fact demonstrates very conclusively that the advance in dental training is beginning to have its influence and is permeating the mass of the so-called dental literature of the country as well as the minds of those who control it.

The books issued under dental supervision are growing in value, but the time has not yet arrived when a student can say, "In this volume is enclosed all that I need for my foundation work." When dentistry has a series of text-books in which everything is eliminated except that which bears directly and practically upon the subject in hand, such as Gray's "Anatomy," we may look for better-trained students. Several of this character have been issued, but more are needed. Our text-books are loaded down with matter valuable in itself, but wholly unsuited as *pabulum* for the untrained mind.

The past year has not added anything to our practical knowledge, but this could not have been expected. Future changes, if any, will be slowly evolved. They may come in a year, but more likely it will be many years before anything revolutionary in practice will be developed.

We can leave our retrospection of the past year with the comfortable feeling that if there has not been a marked advance, there has been no retrogression, and that the influence of the past twelve months is all in the direction of progress, and this augurs well for the position of dentistry in the coming century.

THE FOREIGN RELATIONS COMMITTEE.

THE report of the meeting of the Foreign Relations Committee, as published in the October number of the *Dental Review* and the "Circular of Information" from the same source, have been sent broadcast for the instruction of those interested. While the two reports may not find readers among the main body of dental operators, they will be read with care and attention by all those engaged in dental education, both in this country and abroad.

The report of the meeting contains not only much of interest, but the communications from the members of the several committees resident in or native of foreign countries enter very fully into the condition of dental education in their respective localities and of the laws which govern it, and if nothing else were gained, these would amply repay the labor expended in their organization. Had the Foreign Relations Committee confined its exertions to gathering information for the use of dental colleges belonging to the National Association of Dental Faculties, it would have received unlimited credit for good work.

When the Committee was appointed it was expected that dental colleges in this country would be relieved of much embarrassment in deciding questions relating to foreign applicants for advanced standing, and hence it was given all the encouragement possible at the beginning of its work, but the fear was felt by some that, possibly, we might be led into a maze of difficulties more perplexing than those which originally disturbed educational circles.

This fear has been more than realized through the two years of work of this Committee. The reason for this is not far to seek; in fact, it is clearly set forth in these two reports. The tendency of some committees is to exceed instructions, but, in the writer's experience, there have not been many that have assumed powers equal to this, never delegated to it, or one that has attempted to dictate who shall or who shall not be admitted, not only to advanced standing in American dental schools, but who may be matriculated from foreign countries in the first or Freshman year. In proof of the latter the following quotation will satisfy the critical mind. On page 2 of "Circular of Information" the Committee states that "All applications made in America for admission of foreign students to the *first year's course* of our schools must also be referred by them to the Foreign Relations Committee for like information and approval. This action is imperative and will

henceforth be enforced upon all reputable American Dental Schools." (Italics ours.) The only excuse for this absurd and extravagant utterance must be found in the fact that the powers delegated to this Committee were not clearly defined by the Faculties at the time of its appointment. Reference to the rule adopted, however, will conclusively show that no such power was given this Committee, nor was it supposed by the members of the Faculties Association that it would ever be assumed. The only standing committee in that body having this power is that known as the Ad Interim Committee, elected annually by the members, and the power legitimately belonging to it will probably never be given to any other committee, especially one appointed by the president of the Association.

In the brochure before alluded to the Committee has added the rules governing the Association of Faculties. In this is the one adopted regulating the duties of the Foreign Relations Committee. It reads as follows:

"A standing committee of five shall be appointed each year by the president of this Association, to be called the Committee on Foreign Relations, whose duty it shall be to report each year upon the relative status of dentistry in America and Europe, and to suggest any measures that, in the opinion of its members, will promote the welfare of our common profession and the usefulness of the distinctive American dental degree."

The closing paragraph is as follows:

"The Foreign Relations Committee is given jurisdiction in all foreign American dental educational matters, subject always to the approval of the National Association of Dental Faculties, to which a full report shall be submitted annually."

The latter paragraph may be taken as giving authority to decide what American colleges may or may not do, but as originally intended it applies only to those making application from abroad for advanced standing, and concerns itself solely with the status of foreign applicants, and has nothing to do, directly, with American dental colleges. It is for the advising committees in the several countries to endorse or reject certificates or diplomas, and it is the duty of the proper officers of American colleges to correspond relative thereto. No self-respecting dean would think of writing to the chairman of the Foreign Relations Committee for *permission* to accept a student in the Freshman year, or even for advanced standing. What the colleges want is information, not dictatorial assumption.

In the general report of the meeting of the Foreign Relations Committee occurs the remarks of Dr. Bryan, of Basel, Switzerland. If he is correctly reported, it would seem that he should have said either less or more. The following is the paragraph as printed :

“There are fifty-two American graduates D.D.S. practising in Switzerland, and thirty-six answered a circular letter, many of whom matriculated in October and went back in June, graduated. Many do not know anything of English. Five different complaints have been filed with me of irregular practices, and all of which were against one school, and that most pretentious in its requirements.”

Who gave Dr. Bryan the authority to receive complaints against American schools? Perhaps the Foreign Relations Committee can answer this query, for it certainly needs an answer.

The statement that “five complaints” were filed against one school requires explanation. Why has not that school been reported to the Ad Interim Committee? We question the correctness of so much of the statement which concerns the inability to speak English. This charge has been repeatedly made, but it has never been accompanied by attested facts. Usually the knowledge of English possessed by matriculates from Switzerland has been a constant source of surprise to the writer. It is rather singular and yet it may be true, that some school can note exceptions to this favorable opinion. By all means let us have the name of the college graduating men from Switzerland who were not conversant with the English language, spoken or written.

It is not pleasant to be forced to recount these things in a public journal, but as the Foreign Relations Committee has elected this method, there is no escape from the responsibility, and it must expect to receive the criticism its action merits.

The foreign advisory committees may yet prove a blessing to dental education in America, but if they are to accomplish this they must attend strictly to the work given them to do, and not attempt matters for which they were not appointed and for which they have no qualification. America must work out its own educational problems, and that without interference from foreign ideas which can never harmonize with those which have taken root here. We welcome opinions and advice properly given, but dental schools in Europe will have to take many steps forward before they are in a position to instruct the higher dental colleges of this country in the best methods of dental education.

When the National Association of Dental Faculties meets at Old Point Comfort, the Foreign Relations Committee will be called upon to answer to that body for an assumption of power never contemplated by that organization.

HORACE WELLS.

THE half-tone picture which is placed as a frontispiece to this number is an excellent reproduction of the memorial bust of this distinguished man.

A committee having its preparation in charge was appointed by the American Dental Association, and the funds necessary were contributed by that organization and, through subscription, by members of the dental profession in the United States. The work has required time for its completion, but the result has been very satisfactory to the committee.

The bust was modelled by J. Scott Hartley, the celebrated sculptor of New York City, and then cast in bronze by the Gorham Company, through the firm of Baily, Banks & Biddle, of Philadelphia. It is regarded by the son of Dr. Wells as being an excellent likeness.

The bust will be deposited in the National Medical Museum, Washington, D. C., by the chairman of the committee, Dr. J. D. Thomas, to whom the dental profession owes a debt of gratitude for his energetic efforts to have this memorial worthy the man and the discovery it represents. Its final resting place is peculiarly appropriate, and it will there remain for future generations to honor the discoverer of anæsthesia and be an ever-present and enduring evidence of the gratitude felt for Horace Wells by the dental profession.

DEATH OF DR. B. H. CATCHING.

THE announcement of the sudden death of Dr. Catching was received too late for an extended notice. This will be sad information to a wide professional circle, for his death will not only be a great loss to dentistry in the South, but will be equally felt throughout the profession. A full account of his life work will be given in the next number.

CORRECTION.

IN the obituary article on Dr. Bonwill, in the November number, two letters dropped out of the word *prostatitis*, to the annoyance of the editor. The intelligent reader no doubt supplied the omission.

Bibliography.

AN EPITOME OF THE HISTORY OF MEDICINE. By Roswell Park, A.M., M.D., Professor of Surgery in the Medical Department of the University of Buffalo, etc. Based upon a course of lectures delivered in the University of Buffalo. Second Edition. Illustrated with Portraits and other Engravings. Pages 370. The F. A. Davis Co., Publishers, Philadelphia.

This valuable history of medicine was fully reviewed in this journal upon the appearance of the first edition, and that the second is called for within a year is confirmatory of the favorable opinion then given and of the interest with which it has been received by the medical profession.

This edition shows but few changes made. With the exception of the correction of some "inaccuracies" in the first edition, to which the attention of the author had been called by reviewers, and the addition of a supplementary chapter on "Iatrotheurgic Symbolism," there is but little added. This latter addition is, however, an exceedingly interesting one, although the propriety may be questioned of introducing it in a work on the history of medicine. While it may be considered as straining a point to regard the phallic emblems as in close relationship to medicine, the historical student will not deem this important in view of the value of the effort of the author to establish the full value of the symbols that have come down to us from so-called pagan sources.

While dentistry has reason to be grateful for the chapter upon this subject, the reviewer cannot avoid the regret that this had not been made more complete, but as far as it goes due credit is given to the work of this profession, and the author deserves unstinted praise for his willingness to consider the record made in dentistry as not unworthy a place in his history of medicine.

The history of dentistry cannot be written apart from that of medicine, hence dentists, in order to rank as men of culture must familiarize themselves with its history, from which they can alone date the origin of their profession. Dentistry has not yet reached the standard set up by the Greek anatomist Erasistratus when he deposited in the temple of the Delphian Apollo the leaden forceps (Odontogogue) to indicate that a tooth should not be extracted until it could be removed by that character of instrument. That act, so far-reaching in principle, should be well studied, and perhaps in the twentieth century we may discover that the advice given two thousand three hundred years ago has become a fact in practice.

The work has been prepared by one having the faculty of condensation without sacrificing the salient points of medical history, while at the same time the author has been able to give his readers a work full of interest from the first page to the last.

THE HYGIENE OF THE MOUTH: A GUIDE TO THE PREVENTION AND CONTROL OF DENTAL DISEASES. By R. Denison Pedley, F.R.C.S. (Edin.), L.D.S. (Eng.), Dental Surgeon to the Evelina Hospital for Sick Children, Southwark, London. Numerous Illustrations. J. P. Legg & Co., London, and S. S. White Dental Manufacturing Company, Philadelphia.

This book of ninety-three pages is an effort to show "that dental diseases are widely prevalent, that they are the sources of much misery, and have serious effects upon the general health from early life to mature age." At the first glance this explanatory paragraph from the author's preface would seem to indicate that his book must be a series of recognized facts and hardly worth the effort required to bring them to the attention of dental readers. While the latter are supposed to be familiar with the teachings of this book, they are by no means over-intelligent regarding much condensed within its pages, nor are they sufficiently careful to instruct their patients in the means best adapted to keep the mouth in a hygienic condition. The author, therefore, has performed a real service to dentistry in marshalling his facts, and could the book be published in cheap paper covers, so that dentists generally could have it, or, what would be better, have abstracts made for general circulation, it would have a value not attainable in its present form. The ignorance of the masses in regard to hygiene of the mouth is profound. To educate in this

direction is one of the greatest necessities of this age; but this fact is not appreciated to its full importance by dentists, and certainly not to any extent by the laity.

The author dwells, very properly and at length, on the care of the deciduous teeth. A very excellent and effective illustration is given on page 7 showing the action of the tooth-brush over the convex surfaces of the teeth. It tells its own story better than a page of descriptive text.

The author seems to give undue prominence to caries as a factor in producing epilepsy, chorea, etc. While it is unquestionably true that caries may produce these reflex disturbances through exposure of pulps, it is doubtful whether in all the cases reported the nervous conditions had their origin from this cause. One case is mentioned on page 23 in which the patient was affected with epilepsy at nine years of age. Six carious teeth were removed, with entire relief. The explanation the reviewer would give of this case would be, that the second molars, at this age, were impinging upon the inferior dental nerve, and that these, and not caries, were the cause of the nervous disturbance. The removal of the first permanent molars allowed the second molars to come forward more rapidly, and the irritation ceased.

The effect of the products of putrefaction are lucidly set forth under the proper heading, accompanied with cases and statistics sufficient to startle the ordinarily unobservant mind.

If this book could be read chapter by chapter in our public schools, taking the place of some other reading matter, it would be a cause of less contention and more of a blessing to the pupils, as well as of value in insuring a greater degree of health to future generations.

The ignorance of the general public in regard to the care of the teeth is simply appalling, and it is time that organized dentistry should make an effort, through cheap tracts, to disseminate knowledge in this direction. Money is always wisely expended when it adds to the health and comfort of the masses. This work of R. Denison Pedley points the way to a better understanding of the hygiene of the mouth, and is worthy of careful reading by all classes of the community.

Domestic Correspondence.

CRITICISM UPON THE USE OF "VOLASEN."

TO THE EDITOR :

SIR,—In the April number of the INTERNATIONAL DENTAL JOURNAL, pages 259, 260, appears a part of the proceedings of the Northeastern Dental Association, wherein certain statements are made by Dr. G. Lennox Curtis, of New York, relative to the use of "volasen" by Dr. Howard Kelly, of Baltimore, in an operation for suspension of the bladder.

In the light of the enclosed letter from Dr. Kelly, it is fair to presume that Dr. Curtis has been misquoted in the report of the Association. Too often statements are made in society meetings, and thence published through the reports of the meetings, which, though taken by the older members of the profession *cum grano salis*, are liable to do the young practitioner much damage. On these grounds I have had occasion to investigate from time to time those statements which seemed to me to be destined to produce such a result with the younger members of the profession. The positive declaration of the article to which I call your attention, on account of the well-known dangers from idiosyncrasy incident to the use of cocaine, led me to make inquiry through a friend, who is a personal acquaintance of Dr. Kelly, as to the authenticity of the report. That there might be no mistake, I sent a copy of the JOURNAL containing it, with the result as herein contained.

I assure you that the motive that actuates me in writing you is only to correct a mistake that possibly may have been made, in order that the younger members of the profession may not be misled by the positive statements made in the JOURNAL and be induced to trust an antidote the components of which are unknown.

And again, believe me, I do not question the efficacy of the compound volasen, never having tried it, yet should untoward symptoms arise during its administration, even were they from some other cause, an explanation would be hard to make, or a

legal investigation difficult to meet. Trusting the spirit with which these remarks are accompanied will be fully appreciated by all concerned, I remain

Respectfully yours,

B. S. SCOTT.

TACOMA WASH., July 19, 1899.

(The following is a copy of Dr. Kelly's letter.—ED.)

"1406 EUTAW PLACE.

"DEAR DOCTOR,—I operated on a patient last October, using cocaine alone for an anæsthetic.

"A warm personal friend of patient—Dr. Curtis, of New York—sent me a preparation, which he begged me to give her, at the same time; until I saw this note you send me I had forgotten its name. The dose was small, and I accepted his assurance it was not dangerous, and gave it.

"I do not know that it had the slightest effect, and have never used it since; and since seeing the article you send me never would use it again. It was used in a purely complaisant way, and I had no reason to attribute any effect to it whatever.

"Please make this statement very emphatically if my name is used any further.

"Truthfully yours,

(Signed) "HOWARD A. KELLY."

Notes and Comments.¹

COCAINE AND EUCAINE.—In response to a request for a method for distinguishing eucaine from cocaine, we reprint the following taken from *L'Odontalgique*.

"The excessive solubility of hydrochlorate of cocaine permits its being distinguished from hydrochlorate of eucaine, for eucaine is soluble one part in nine of water, while cocaine is soluble in less than its own weight of water. To detect eucaine that may be

¹ The assistant editor solicits contributions for this department,—new methods, new remedies and formulas, or any short practical note which may prove of value to the practitioner or student. Address 1338 Walnut Street, Philadelphia.

fraudulently added to cocaine, because of its costing less. Vulpinus states that by dissolving ten grains of the suspected salt in fifty cubic centimetres of water, and then adding two drops of aqua ammonia, if the cocaine is free from eucaine the liquid will remain clear, even though a few crystals may be deposited, whilst if eucaine is present the solution becomes cloudy or milky in appearance."

DURABILITY OF CEMENT FILLINGS.—In reference to the durability of cement fillings, the *Pharmaceutical Journal* says the durability of the filling is greatly increased by condensing it thoroughly by pressure while it is setting. This is best done with a smooth, round-headed hand burnisher, kneading it, so to speak, into the cavity. The rubber dam should be used, and as much care taken in shaping and finishing the cavity as for a gold filling. A stopping so treated with melted parffin flowed over, using the hot-air syringe to keep it melted while it soaks into the cement, will be found (the conditions of the mouth being favorable) to last for many years, even in the most exposed positions. It is as remarkable as it is true that the walls of carefully prepared cavities that have been filled with cement seldom show any signs of recurring decay, although the stopping may be worn away considerably below the enamel edge.

FADS AND FADDISTS.—Our lamented *American Dental Weekly* said some time ago, in speaking of fads, "It is right hard to retain an equipoise during such times, and few, comparatively, do so. Almost every individual dentist has a fad of some kind, and at times one or more are brought prominently before the profession. Prominent men, and journals as well, will take hold of them, and for a while scarcely anything else is heard but the fadded thing. Sometimes good results come from fads. If in no other way, they cause some people to think, which act will cause the promulgation of an idea or thought that leads to good and lasting results.

"Again, fads, when they have run their course, teach by experience, and such lessons are not easily forgotten; but the investigation put forth by some who are carried with the whirl and stranded on the shore of despair often points the way out of a danger to others, and to a more reasonable procedure. As an il-

lustration, the putting into active and indiscriminate practice, a few years back, by the medical profession, that part of the Mosaic law relating to circumcision. It was merely a fad for a while, but to the thoughtful and reasoning, the benefits in a majority of cases changed a fad to an absolute necessity.

"To do something new often leads the young and inexperienced into the fadding of methods which often are valuable, but which require mature judgment for their proper execution.

"How perfectly familiar the copper-amalgam fad is to the reader! It required the greatest amount of conservatism to withstand the onslaughts of this, the fad of fads. Then there came the 'Herbst method,' when manufacturers put thousands of dollars into the new instruments that were required to practise this fad. The journals teemed with it, the societies gloated over it; only occasionally would be heard the well-poised warning against it. Everything seemed to be pell-mell, all going Herbstward. Where now are the method and the instruments?

"Then came cataphoresis. Factories were putting out the best machines all over the country, every man who had used it rushed into print and before societies. Now one of the leaders says he thought he knew something about it, but finds, after *experience*, that he does not, and declares that the perfect machine has yet to be made.

"The results of cataphoresis are sometimes wonderful, and sometimes disastrous. It requires the thinking, conservative man—the one who neither rushes into print nor before the society—to get out of it what there is in it."

LORETIN.—Dr. Esch, of Eisenach, reports that loretin fulfils all the properties of iodoform. It is superior to the latter owing to its being odorless, does not cause skin eruptions nor iodism,—three great advantages which should be highly valued by the practitioner. He also reports excellent results with loretin-bismuth in ulcers of the leg, not only those which were due to specific causes, but also those of varicose origin. He used it in about thirty cases in the following manner: The floor of the ulcer should be first wiped out with sterilized cotton-wool, after which it should be freely dusted with loretin-bismuth, and sterilized cotton-wool applied; the leg should be elevated and a bandage loosely applied. As the cotton-wool becomes soaked with the secretion of the wound,

loretin-bismuth should be dusted on and around it, and fresh portions of cotton-wool placed on the old one; or a completely fresh dressing can be applied. Within two or three weeks he was able to heal up a few dozen ulcers of the leg which had existed for some years, some of which were considerable in extent.—*Therapist*.

CATAPHORESIS AND ARSENIC.—Dr. Fletcher, in the *Dental Digest*, says, "A dentist in this city made an application of arsenic in the usual manner, and at the next sitting attempted to remove the pulp, but found it highly sensitive. To hasten matters he applied cocaine with the current and removed the pulp painlessly, but at the next sitting he found the arsenic had been inducted into tissues beyond the tooth. Here was the devil to pay and no funds. Don't say he should have known better; any one might have done the same thing thoughtlessly."

Current News.

INTERNATIONAL DENTAL CONGRESS.

THE Transportation Committee of the National Dental Association for the International Dental Congress in Paris, next year, are perfecting arrangements for tours and special rates for delegates and their families, and in all probability they will be completed so as to appear in the January issue of the journals.

W. E. GRISWOLD,
Secretary.

DENVER, COL.

OHIO STATE DENTAL SOCIETY.

THE Thirty-fourth Annual Meeting of the Ohio State Dental Society will be held at the Grand Southern Hotel, Columbus, Ohio, December 5, 6, and 7, 1899. A good programme, consisting of essays and clinics, has been prepared. A cordial invitation is extended to the profession at large.

HENRY BARNES,
Chairman Executive Committee.

NATIONAL SCHOOL OF DENTAL TECHNICIS.

THE meeting of the National School of Dental Technics will be held in Philadelphia, at the Continental Hotel, beginning at ten A.M., Wednesday, December 27, and continuing three days.

Every teacher in the profession should be present. A most excellent programme will be presented, consisting of a lecture and demonstration by Professor J. Liberty Tadd, and papers by Drs. Faneuil D. Weisse, C. S. Case, D. A. Gritman, A. E. Webster, W. H. Whitslar, M. H. Cryer, H. J. Goslee, Otto Arnold, I. N. Broomell, G. V. Black, A. H. Thompson, James Truman, and others.

GEO. H. WILSON.

MARYLAND STATE DENTAL ASSOCIATION.

THE following are officers of the Maryland State Dental Association for 1899-1900:

President, E. E. Cruzen, D.D.S.; First Vice-President, G. Marshall Smith, D.D.S.; Second Vice-President, J. K. Burgess, D.D.S.; Recording Secretary, Richard Grady, M.D., D.D.S.; Corresponding Secretary, George R. Carter, D.D.S.; Treasurer, S. C. Pennington.

Executive Committee.—B. Holly Smith, M.D., D.D.S., Chairman, C. M. Gingrich, D.D.S., and W. W. Dunbracco, D.D.S.

RICHARD GRADY,
Recording Secretary.

720 N. HOWARD STREET, BALTIMORE, MD.

MISSOURI STATE DENTAL ASSOCIATION.

THE Missouri State Dental Association, at its Thirty-fifth Annual Meeting, Kansas City, July 11-14, 1899, elected the following officers for the coming year:

President, Dr. W. L. Reed, Mexico; First Vice-President, Dr. S. J. Smith, Columbia; Second Vice-President, Dr. A. M. Tutt, Liberty; Corresponding Secretary, Dr. B. L. Thorpe, St. Louis; Recording Secretary, Dr. H. H. Sullivan, Kansas City; Treasurer, Dr. J. A. Price, Savannah.

The next meeting will be held at Louisiana, Mo., on the first Tuesday after July 4, 1900.

B. L. THORPE,
Corresponding Secretary.

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